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Workflow analysis to identify the opportunities for improving information management and nurses' work efficiency in palliative care

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Workflow Analysis to Identify the Opportunities for Improving Information Management and Nurses' Work Efficiency in Palliative Care

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Dedicated to my parents and my sister

CERTIFICATION

I, Shaohui Ma, hereby declare that this thesis, submitted in fulfilment of the requirement for the award of Master of Information and Communication Technology by Research, in the School of Information Technology and Computer Science, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Shaohui Ma

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Abstract

As a means to identify the appropriate opportunities for an organisation to apply Information and Communication Technologies (ICT) to streamline its process, workflow analysis is the essential first step in achieving better process management and efficiency. The purpose of this research is to understand, through workflow analysis, the step-by-step process of tasks completed by nurses in a palliative care ward and a community healthcare centre. This understanding will contribute to the accurate identification of appropriate opportunities for applications of ICT that fit the nurses' relevant task requirements, and will improve work efficiency of the nurses involved in palliative care.

The literature review gives the general concepts of the research and background information about both palliative care and optional applications of ICT. The materials are gathered via the Internet and library. This research is conducted in the palliative care ward at Port Kembla Hospital and the community healthcare centre of the Illawarra region. The major data collecting methods are interview and observation conducted in the ward and the community healthcare centre. These data collecting methods have advantages and characteristics of qualitative research methodology that benefited this research project.

The direct outcome of this research is a set of workflow analysis diagrams covering the major procedures of the nurses' daily practice. Through analysing these workflow diagrams, this thesis describes the situations for the potential applications of ICT, the

use of the applications, and the benefits of implementing these applications. After the description and discussion in this thesis, the chosen ICT applications are Personal Digital Assistants (PDAs), wireless technology, scanner and barcode systems, as well as an advanced database system.

The adoption of these applications has the potential to improve the management of medical information, and the work efficiency and effectiveness of the nurses' daily practice, and benefit the palliative care patients and their families.

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Chapter 1: Introduction

In recent decades, Information and Communication Technology (ICT) has been changing ways of living in all aspects of human life, including healthcare. The introduction of ICT has resulted in continuing, unprecedented and irreversible changes in the way in which healthcare is practised (Maheu, Whitten & Allen 2001).

Workflow management contributes to the automation of a business process, during which documents, information or tasks are passed from one participant to another for action, according to a set of procedural rules (Future Strategy Inc. 2003). Through detailed observation and analysis of how healthcare workers conduct their daily work tasks, workflow analysis contributes to identifying the opportunities for a healthcare organisation to effectively apply ICT applications to streamline its processes. The importance of workflow analysis in healthcare and automation of work practice has been identified by Browne and Warren (2002). There has been a growing belief that workflow technologies could benefit many areas of healthcare and as such, just like Electronic Health Record (EHR), should form a foundation stone for the next generation of health information systems (Browne & Warren 2002).

Palliative care is an important part of healthcare across the institutional and non-institutional settings. It is about caring for people with a terminal illness, as well as caring for their families and friends. Its aim is to ease the pain, distress and many other physical, emotional and spiritual problems that are present with a terminal illness

(Palliative Care Australia 2003). This care is delivered, where possible, in the environment of that person's choice (Palliative Care Australia 1999).

Workflow analysis is an important first step towards streamlining the work procedure of the nurses in palliative care with the aim of identifying opportunities for employing ICT applications to enable more effective and efficient delivery of palliative care services.

Applications of new technology produce new business models for organisations. The emergence of new business models and their social impacts are just two of the areas where significant change might occur (Holt & Gillies 2002). This research project is conducted based on three premises. Firstly, palliative care is an important, unavoidable service to the patients in their final stage of life. Improving the work efficiency of the nurses would significantly benefit the palliative care patients and their families. Secondly, the shortage of nurses is one of the serious workforce problems in current Australian healthcare. This shortage is also evident in the palliative care area. Finally, the use of ICT applications remains fairly low in both palliative care wards and community healthcare centres. The enabling role of ICT for improving healthcare quality and safety, and reducing cost has not been realised. These reasons justify the importance of the current research project.

The purpose of this research is, through systematically analysing workflow of the nurses' daily practice in palliative care, to identify opportunities for the employment of ICT applications to help nurses conduct the relevant tasks, and to improve the nurses' work efficiency, information management and care delivery to the patients.

The three objectives of the research are:

1. To understand and document nurses' work practice in palliative care;
2. To identify opportunities for change practice. What, when and how ICT can be effectively applied to improve nurses' work practice;
3. To identify what kind of technology can be effectively applied in palliative care.

Nurses in palliative care have to not only tend the patients and satisfy their needs, but also deal with a great amount of paperwork. As a large number of palliative care patients stay at home, nurses need to constantly travel between community healthcare centres and patients' homes. These are all good reasons for ICT to be applied in palliative care. During the investigation conducted in the palliative care ward at Port Kembla Hospital and several community healthcare centres in the Illawarra region, the workflow of the nurses' daily work practice could be precisely documented. This has the potential to accurately identify opportunities for ICT applications to be implemented, to define the right solutions and to plan on how to use the possible applications to maximise the return of investments.

In order to analyse the workflow of palliative care effectively, the investigation starts with literature research. Chapter 2 gives brief information about palliative care, workflow analysis and the related ICT applications.

In Chapter 3 various research methods are investigated. The ethics issue is considered as this research involves human aspects. The research sites are determined. The approaches to the research are discussed. Quantitative and qualitative data collecting methods are compared.

Chapter 4 is the results section. The workflow diagrams cover the major procedures of the nurses' daily work practice in both the ward and community healthcare centres. Issues raised during the investigation are described.

Discussions of this research are given in Chapter 5. The explanation of where and how the ICT applications can be implemented in palliative care and the reasons therefore are discussed. The benefits the nurses can get from these applications are addressed. The researcher also describes the methods of utilising these applications in the recommendation section.

Chapter 6 concludes the thesis and explains the limitations of the research. The future research directions are also listed.

Chapter 2: Literature Review

2.1 Introduction

The increasing use of advanced Information and Communication Technology (ICT) has drawn the attention of people who have an interest in this area. As one of the most important parts of information technology, the process improvement within an organisation or between organisations has attracted many information product manufacturers to design and develop appropriate products. Workflow management technology has been widely adopted by the general healthcare area. However, its penetration into palliative care is relatively new.

As stated in the previous chapter, the purpose of this research is to use the method of workflow analysis to analyse the work process of the nurses, to identify opportunities for applications of ICT that fit the nurses' relevant task, and to improve work efficiency of the nurses in the provision of palliative care. The application of ICT in palliative care is promising for improving healthcare service for patients, who are suffering from terminal diseases, and patients' families. In this chapter, the researcher will briefly review the relevant information about palliative care, workflow, and the benefits of ICT found so far in the related healthcare area.

2.2 Palliative Care

Palliative care is caring for people with a terminal illness, as well as caring for their families and friends. Its aim is to ease the pain, distress and many other physical, emotional and spiritual problems that are present with a terminal illness (Palliative Care Australia 2003). A further definition given by the Canadian Palliative Care Association (1995) is that palliative care is a "philosophy of care that provides a combination of active and compassionate therapies intended to comfort and support patients and families who are living with life-threatening illness, being sensitive and respectful of their religious, cultural and personal beliefs, values and traditions". Numerous researchers have been exploring in this relatively new area of healthcare. Among them, Aranda (1998:22) gave the four main principles of palliative care, which

- Is an approach to care emphasising living and acknowledging death as an intrinsic part of life;
- Is centred on the patient and family as client and emphasises the client's role in the direction of care;
- Utilises a multidisciplinary team in recognition of the need to offer care that is holistic and meets the complex needs of the dying patient and the family;
- Focuses on comfort and the full relief of symptoms rather than cure of diseases.

An effective framework for the delivery of palliative care throughout the disease continuum can be most readily seen as an "umbrella of care" (Krammer et al 2001:119). The key role of this care is played by the nurse, who acts as clinician, educator, researcher, collaborator and consultant (Krammer et al 2001:132). This requires nurses

not only to be excellent in performing nursing tasks, techniques and procedures, but also to be sensitive to each patient's feelings and emotional needs (Edwards et al 1984:342).

However, living in a changing environment, nurses have to adopt changes too, like other people. In his book *The nurse as a change agent*, Wright (1998:50-52) addressed seven steps for nurses to adopt changes:

- Agree on goals – a vision for the future;
- Make a diagnosis;
- Design the intervention;
- Implement the intervention;
- Skill training;
- Reinforce new norms: talk about success and congratulate each other to encourage;
- Replicating: transferring the experience and knowledge and repeating the steps on other sites.

To establish the effective palliative day care, seven key issues should be considered (O'Keefe 2001:44). They are needs assessment, mapping out a service network, referral criteria, service specifications, policies, marketing, and avoiding problems.

Some researchers (Royal District Nursing Service 2004) suggest that palliative care service can help palliative care patients by:

- Providing expert 24-hour nursing care, 7 days per week

- Managing pain and other symptoms
- Providing support to clients and carers, including overnight respite care
- Arranging equipment
- Working closely with patient's family and other healthcare providers, such as patient's doctor, palliative care physician, social workers and volunteers
- Providing or arranging bereavement care, including grief counselling and support groups.

Despite the vast number of researchers in palliative care, there is a lack of research on ICT applications in this area. However, it is a trend to combine information technology with healthcare services. Kristjanson (2001) stressed that solutions based on information technology are needed to enable palliative care practitioners to manage the increasing amounts of information that are becoming available to them and to use it effectively. The researcher then concluded that research collaboration between ICT and palliative care practitioners is timely and appropriate. O'Neill and Rodway (1998) expressed concern that advances in information technology and the resolution of concerns about confidentiality and security of data offer opportunities for sharing computerised records, so that all those treating a patient have immediate access to details of treatment and any investigations performed.

Besides these deliberations, the work process of the daily nursing practice should be considered in terms of efficiency and effectiveness. The purpose of workflow analysis is to streamline work process of palliative care, and assist the researcher to understand when, where and how ICT can be applied to enable nurses to deliver better healthcare for patients.

2.3 Workflow Technology

2.3.1 Workflow

The term “workflow” is defined as “a series of tasks within an organisation to produce a final outcome” (webopedia.com 2004). Some researchers consider that the order of those tasks will depend on external influences, and that there is not just one single ordering or task set that will produce the result. So, the "flow" is a flow of attention among this set of tasks (c2.com 2004). Other researchers, such as Baeyens (2004), regard the term “workflow” as a series of related interactions between people and a computer system, and this term is more often heard in developed communities. From these definitions of workflow, the researcher reflects that one of the best ways to understand nurses’ daily practice in palliative care is to analyse their workflow in conducting the tasks of nursing care. Based on these analyses, the sections of their work practice can be identified and each evaluated to assess whether they can by improved by the use of ICT applications.

The aim of analysing the workflow of nurses’ daily practice is to recognise the chances for applying information technology in the palliative care work practice; furthermore, the nurses can improve the management of their tasks, and streamline their own work processes. To understand the advantage of workflow, it is beneficial to understand the workflow management system.

2.3.2 Background Information on Workflow Management Systems

Workflow management technology, or as it is also known workflow management systems, is one of the significant innovations of information technology. It is also known as business process automation and it allows computer specialists to represent the business process rather than just supporting or automating discrete tasks (Schal 1996:87-89).

According to the definition from the Workflow Reference Model of Workflow Management Coalition (Hollingsworth 1995), the definition of workflow from an ICT point of view is “the computerised facilitation or automation of a business process, in whole or part.” The workflow management system is “a system that completely defines, manages, and executes workflows through the execution of software whose order of execution is driven by a computer representation of the workflow logic”. Hollingsworth also addressed the primary characteristic of workflow management as the automation of processes involving combinations of human and machine-based activities, particularly those involving interaction with IT applications and tools (Hollingsworth 1995). Another definition is that the workflow management system is the automation of a business process, in whole or part, during which documents, information or tasks are passed from one participant to another for action, according to a set of procedural rules (Future Strategy Inc. 2003). This definition recognises that a workflow management system is not only a computer-based automation, but also a management of business process.

After more than a decade of development, the workflow management systems have been classified based on different characteristics of workflow. The most common kind of workflow management system described by Palermo and McCready (1992), cited by Riempp (1998:74), is as follows:

- Production workflow systems with high transaction rates and customised applications.
- Administrative workflow systems with lower transaction rates and form-based, recurrent processes. They replace manual systems and have a high level of user interaction.
- Ad hoc workflow systems that are people centric and support ad hoc and un-planned work.

From this classification it is obvious that the so-called ad hoc workflow system is the most flexible workflow system.

In terms of the technological basis on which workflow systems are built, there is a fundamental distinction between systems based on relational or object-oriented databases, also known as database and transaction oriented systems with transaction concepts focused, and systems focusing on documents, forms and messages, known as document and communication oriented systems (Riempp 1998:75).

Despite the different approaches and modelling systems that define various kinds of workflow systems, the purpose of workflow management systems is to provide solutions to organisations or workgroups with the automation of processes of their

policies and procedures (Khoshafian & Buckiewicz 1995:vii). Workflow management systems pave the way for information technology to be applied in process manipulation of an organisation. Since the workflow system comprises highly sophisticated and rule-based computer software engines, it traditionally involves routine information via an electronic messaging backbone and the setting up of decision points in order to show what to do next (Bannan 1997:67). Schal (1996:87-89) argued that the email system within a workflow management system might have disadvantages. Firstly, the email mailbox is private for the email mailbox owner. Others involved in the process have no way of accessing the information in the email mailbox so that they cannot coordinate the activities and track the status. Secondly, a message in one's mailbox cannot be readdressed to other users should changing roles and situations during the process require reassignment (Swenson et al. 1994, cited in Schal 1996:89).

Certain manufacturers have provided products focusing on certain aspects of workflow management systems. For example, the manufacturers include Holosofx-IBM (Workflow.BPR), Teamware (ProcessWise Workbench), Meta Software (Workflow Analyzer) (Moore & Graham 2003). The problem might occur in terms of compatibility and interoperability, as activities in one workflow system might need to interoperate with activities from other workflow systems. This is the reason that Workflow Management Coalition produced an essential Workflow Reference Model in 1995 (Hollingsworth 1995).

Figure 2.1 shows the standardised interfaces and components of a workflow management system. The researcher only gives a brief introduction of this model. According to Hollingsworth (1995), the process definition tools are used to get the

computerised definition of a business process in build-time, while the interface 1 is the workflow definition interface focusing between the modelling and definition tools and the runtime workflow management software. This interface is an interchange format and API calls, which can support the exchange of process definition information over a variety of physical or electronic interchange media. This interface connects the process definition and workflow enactment service.

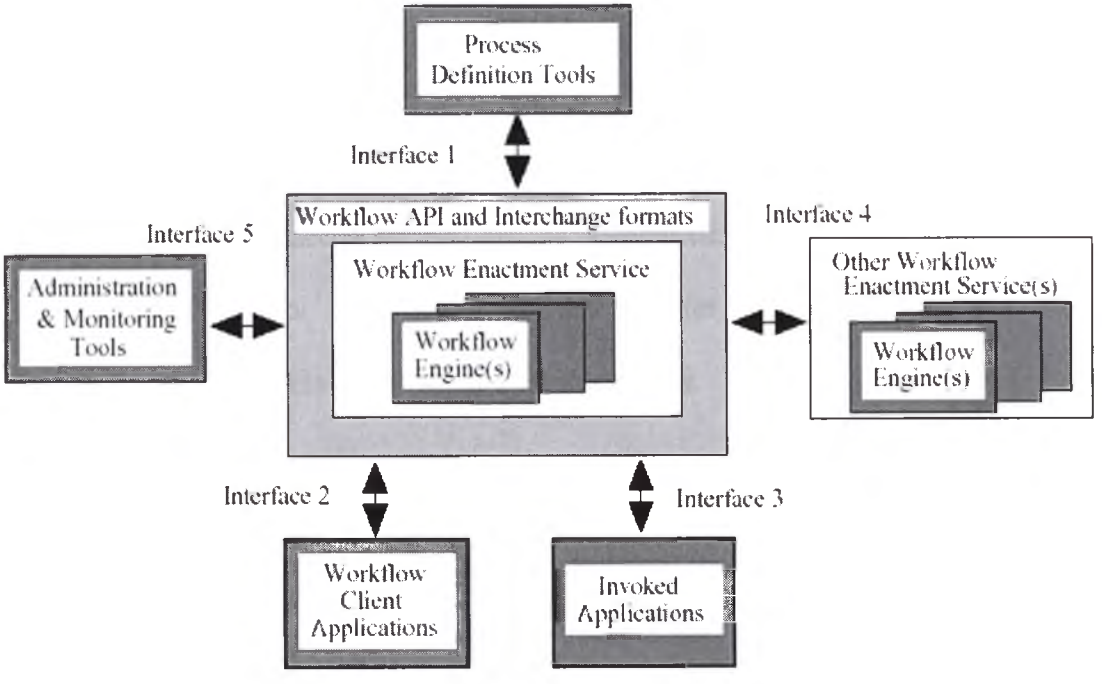

Figure 2.1 Workflow Reference Model – Components and Interfaces (Hollingsworth 1995)

The workflow client application is termed a work-list handler, which is a software component that manages the interaction between workflow participants and the workflow enactment service. The activation of individual work items from the work-list may be under the control of the workflow client application or the user. Hence, interface 2 should have uses of process and activity identifications, resource names and

2 should have uses of process and activity identifications, resource names and addresses, data references and structures, as well as alternative communication mechanisms.

Interface 3 connects the workflow engines and invoked applications. Application invocation is handled by a local workflow engine, using information from the process definition to identify the nature of the activity and the type of the application to be invoked.

Via interface 4, workflow enactment services can acquire the interoperability. The two major aspects of this interface are: firstly, the extent to which common interpretation of the process definition is necessary and can be accomplished; secondly, to interchange various types of control information and to transfer workflow and/or relevant application data between the different enactment services.

Interface 5 makes it feasible to implement the function of administration and monitoring. This interface devotes to the management and audit of workflow management systems.

The last and the most significant two items are workflow engine and workflow enactment service. Hollingsworth (1995) defined the former as “a software service that provides the runtime execution environment for a workflow instance”, while the latter is also software service “that may consist of one or more workflow engines in order to create, manage and execute workflow instances.”

This reference model gives researchers and software manufacturers a framework and guidance on how to design, analyse and produce a workflow management system.

Based on this model, manufacturers developed many kinds of workflow management system products for organisations to apply. As a significant part of the community, healthcare bears a responsibility to utilise the workflow management technology and ICT to provide high level service to its consumers.

2.3.3 Workflow and Information Technology Applications in Healthcare

The increasing role of information technology has broadened the application of workflow management technology. It has been adopted by mainstream product manufacturers and users, including banking, insurance organisations, retailing and manufacturing industries. Especially, workflow analysis of this technology is used as a method to analyse work procedures of organisations.

Many researchers and product providers have already seen its potential and introduced workflow technology to the health care area. The primary aim is to utilise information technology to assist and automate activities involved in care processes, where a workflow management system can facilitate, monitor and audit “who” has done, is doing, or is scheduled to do “what”, “when”, and “why” (Browne & Warren 2002). Thus, workflow systems can make it easier for clinical professionals to work together, communicate, and share their professional expertise to improve patient safety (Meadows & Chaiken 2003:33-34).

Palliative care is a relatively new member of the healthcare family. However, it is an important part of community healthcare. While other aspects of health care are attracting more of the attention of researchers and product manufacturers, there is a lack of research on applications of information technology in palliative care. There is a gap between workflow application in health care and palliative care. The aim of this research is to find when, why and how to apply workflow management in palliative care with advanced information technology such as hand-held mobile communication systems to improve the work efficiency of the nurses.

To apply IT in palliative care would bring the following benefits to palliative care patients and their families:

- Innovation of process control: improve the management of decision-making and authorisation.
- Improving patient service: adoption of effective methods of patient treatment, such as remote analysing systems, database, tele-medicine systems etc.
- Improved flexibility: bring appropriate means to deal with different occurrences. Workflow management technology could pinpoint the appropriate key factor without disrupting the normal routine to help nurses to deal with certain sudden occurrences.
- Cost efficiency: by effectively applying ICT to improve communication and retrieval of information.

The applications of new technologies, such as Personal Digital Assistants (PDAs), wireless technology, databases, and scanner and barcode systems, are booming in many

organisations and assist users by improving work efficiency. These sorts of technologies are considered suitable for use in palliative care by the researcher. In the next part of this chapter, the researcher will briefly examine these technologies.

2.4 Examples of Applicable Information and Communication Technologies

2.4.1 Hand-held Equipment

Hand-held computing equipment, such as PDAs, are the first and most obvious choice for the researcher to consider for use by palliative care nurses, in terms of their features of mobility, weight, and ease of use. There are several ways in which PDA applications can be applied to improve nurses' work practice.

Personal Digital Assistants (PDAs) are small hand-held computers that can provide nurses and doctors with the ability to access adequate and current information, thereby improving patient care (Davenport 2003). Noble (2000:28) considered that PDAs and other hand-held computers provide a way of disseminating information to caregivers in a timely manner by collecting data at the bedside and sharing the data in real-time over a network. PDAs have indeed revolutionised information management by combining the power of a user-friendly computer with the practicality of a hand-held device (Rosenbloom 2003:73).

Rosenbloom (2000:73) notes that PDAs utilise “flash memory”. They turn on instantly, and tend to crash less frequently. While in operation, they can be moved and handled with some facility, without fear of data corruption or mechanical breakdown. Most hand-held computers are easier to use than full-sized computers, but have considerable capability nevertheless; they are also much more reliable and do not crash with the frequency for which full-sized units are renowned (Cameron 2002:111). PDAs synchronise data to and from desktop computers. Text entry is accomplished through simplified writing, a pop-up keyboard, or desktop computer. PDAs are shirt-pocket-sized devices with basic functionality: calendar, address, to-do list, email, memo pad. Their accessories include styluses, cases, memory, modems, bar code readers, cameras, voice recorders, MP3 players, keyboards, business card scanners, global positioning systems (GPS) and mapping tools, television remotes, and sockets for connecting to scientific instruments (Lingle 2000).

Hand-held computers or PDAs have become increasingly popular for a variety of medical applications since the introduction in the early 1990s (Fischer et al 2003:139). Willyard (2000) pointed out that PDAs had found their way into numerous lab-coat pockets across the country, replacing paper-based agendas and 3-x-5 index cards.

Fischer et al (2003:140, 142, 144) summarised the basic functions of PDAs that are valuable in medical practice. These functions include an address book, a scheduler, a to-do list and a memo function. Enabling users to view text files such as books, medical references and documents downloaded from the internet, document readers are important applications that come packaged with some devices or as additional software. Infrared beaming allows transfer of data between PDA users.

Harris Interactive (2001) concluded that the proportion of all physicians who use hand-held devices increased from 15% in 1999 to 26% in 2001 with the number using them as an integral part of their everyday practice almost doubled from 10% in 1999 to 18% in 2001 in the U.S. Nevertheless, some analysts reported in October that more than 15% of U.S. physicians were using handhelds for reference purposes, and they predict that by 2004 the number using handhelds for e-prescribing, ordering and checking lab tests, capturing charges and dictating notes will have reached 20% (Stammer 2001).

PDAs provide a portable, integrated platform for point-of-care clinical reference, patient management and data communication (Schnyder 2004). Using these hand-held computers and a secure Internet connection, physicians are able to check drug interactions, insurance formularies, and patient histories, as well as write and transmit prescriptions directly to pharmacies - all without leaving the patient's side (Rabinowitz 1999). Criswell and Parchman (2002:84) regarded hand-held computers as offering solutions to administrative and information management that are more realistic than those offered by desktop computers or traditional Electronic Medical Records (EMRs). PDAs have three fundamental capabilities: simplifying workflow, optimising productivity, and enabling real-time access to health care data anytime and anywhere (E-Healthcare Connections 2004).

There are two kinds of operating systems on PDAs, Palm OS and Microsoft CE. They are not compatible with each other. Currently, thousands of Palm OS medical programs, databases, textbooks and web sites are available to students and professionals worldwide. This has resulted in PDAs with Palm OS becoming the standard for medical

professionals (Rosenbloom 2003:73). However, Fischer et al (2003:142) argued that many textbooks and handbooks have recently become available in hand-held format for both Palm OS and Windows CE/Pocket PC. They concluded that hand-held drug references were found to have the potential to meet point-of-need requirements in critical care (Fischer et al 2003:144).

There are many medical software programs available on the Internet that can be installed on hand-held computers. Clinical reference software allows the user to access guidelines and information from the Internet, while patient management programs allow physicians to access and store clinical information (Schnyder 2004). Readily available patient-specific or application-specific information at point-of-care allows for more complete and accurate information for the patient encounter. Drug dosages and clinical computational formulas that, prior to the advent of hand-held computers, were accessible only by pencil-and-paper methods are immediately available on hand-held computers, reducing the potential for errors or outdated information (Criswell & Parchman 2002:84). The installation of wireless clinical applications on handhelds so physicians can access, from anywhere, patient data from the hospital information system and practice management system and can pull up data from both inpatient and outpatient systems in real time can reduce medical errors, improve an organisation's competitive edge and save money (Stammer 2001).

Many experts predict that within a few years many doctors will use hand-held computing devices as an integral part of their everyday practice (Harris Interactive 2001). Besides doctors, nurses also rated having quick access to a current drug database and nursing reference books as being the most significant benefit (Davenport 2003).

Davenport (2003) listed the three major benefits as the ability to manage patient and procedure information, bedside data entry, and data collection for research and teaching. PDAs are the devices that possess the capability to offer these benefits. Healthcare organisations and nursing leaders are in a position to help nurses to incorporate PDA technology, and will subsequently reap the benefits of improved patient care and overall organisational quality (Davenport 2003).

2.4.1.1 Access to the medical information

Access to information at the point of care can be extremely valuable in the view of the growing burden of acquiring new medical information, the increased expectations to follow guidelines and formulary restrictions, and the time limitations placed on physicians (Fischer et al 2003:142). This makes point-of-care technology, which can provide prescribing information at the bedside, on the hospital ward, and in the surgery - especially attractive (Rothschild et al 2002:223). The researchers also pointed out that drug information databases available on hand-held devices, such as palmtop computers, improve perceptions about practice efficiency, improve drug knowledge, and may decrease medication errors (Rothschild et al 2002:228). Drug information databases, or pharmacopoeias, are ideally suited for formatting onto a hand-held device (Fischer et al 2003:144).

2.4.1.2 E-Prescribing

Electronic prescribing (e-prescribing) is another major use of PDAs in healthcare. Instead of scrawling the prescription on a piece of paper, e-prescribing lets the doctor enter it into a computer or mobile device at the office; then it can be printed out on a local printer or automatically routed to your pharmacy so the medicine is waiting for the patient's collection (Zabrek 2004). The system also facilitates teamwork between the physician, pharmacist, and office staff (Rabinowitz 1999).

Fox et al (2001) stated the advantages and disadvantages of E-prescribing. For example it reduces errors, including those caused by illegible handwriting, incorrect dosage selections, drug interactions or drug-disease interactions, and drug allergies. However, most do not automatically suggest a dosage adjustment for age, renal function, hepatic function, and alcohol and tobacco use. Rabinowitz (1999) stressed that the learning curve needed to master the equipment had to be very short.

2.4.1.3 Electronic Medical Record

The two most useful features of Electronic Medical Record (EMR) are simplicity of using the program and input speed, at the point of care. Other features include: sharing, facilitating communication, saving time and cost effectiveness (digital-doc.com 2004).

Patient data management and sign-over between physicians is an area in which the risk of errors is high and in which PDAs may play a significant role (Fischer et al 2003:144). Fischer et al noticed that documents containing patient information can be transferred from the computer desktop onto a hand-held device or created directly on the hand-held device; furthermore, the data and changes that are made to the database can be

transferred to the PDA with subsequent synchronisations. Through synchronisation between the desktop and the hand-held devices, PDA users are able to obtain current medication profiles and can access all previous discharge summaries. Hand-held computers have the ability to monitor patients' health and to keep healthcare provider informed about a patient's condition.

2.4.1.4 Security

The security concern involving the use of PDAs in healthcare is significant. There are several ways to secure a PDA while in use. Hand-held devices have a locking security feature; however, users must remember to activate it each time that they want to secure their computer (Fischer et al 2003:147). On all PDA devices, the built-in security application is insufficient for confidential information, from credit card numbers to patient data (Lingle 2000). Although the existing software that comes with PDAs does not provide any reliable security, PDAs can be password-protected and data can be encrypted for security (Al-Ubaydli 2004).

2.4.1.5 Limitations

PDAs or hand-held computers have their limitations both in technique and application aspects. They are sensitive to water damage, the screens can break, and they are expensive to repair (Cameron 2002:112). Cameron also noticed that word-processing documents, presentation programs, spreadsheets, and graphics can be imported and edited with additional software, as Palm OS hand-held devices currently do not come

with the ability to read or edit the files that are most commonly used on a desktop computer. Additionally, it is impossible to upgrade the operating systems of many current PDAs (Cameron 2002:112). Stammer (2001) addressed one of the biggest potential problems with wireless hand-held devices - interference with other systems in the hospital. Davenport (2003) concluded in the research of benefits and barriers of PDAs that nurses confirmed their fears about patient confidentiality as they rated the risk of storing confidential patient information on PDAs as a moderate barrier. The researcher also noticed that entering data into PDAs could be considered laborious, slow and difficult as they do not have standard keyboards; they were also easy to lose; and hackers could tap into wireless hospital PDA networks. PDAs are with small screens, causing the older nurses may have problem to see the information showing on them.

2.4.1.6 Section Summary

The use of information technology at the point of care enables the healthcare provider to improve healthcare safety and quality, and provide the most effective healthcare possible to the public (Zabrek 2004). Hand-held computers have significant potential to improve healthcare practice beyond serving as an address-book or calendar (Fischer et al 2003:148). Clinicians' work practice could be improved with the significant features and applications of PDAs, resulting in greater efficiency, effectiveness, and cost reduction.

2.4.2 Wireless Technology

It is necessary to investigate the characteristics of wireless technology when it is applied in healthcare, because the diverse applications of PDAs can not be realised without the wireless technology.

Wireless technology has moved into mainstream use in hospitals by providing greater efficiency and accuracy to users of such critical applications as bedside medication administration, emergency registration, order entry, physician rounding and clinical documentation (Sims 2003). The main benefit of wireless technology is that it is the most flexible and economic way to achieve our goal of obtaining information at the point of care. It gives users quicker and easier access to clinical information in order to support patient care; nevertheless it saves clinicians' time and makes their lives easier (PDA cortex 2004).

Wilkerson (2001) considered that wireless technology means better organisation, more free time, less stress and better patient documentation. Schroeder (2001) concluded that today's wireless infrastructure is perfectly adequate for applications that involve messaging, simple retrieval of information, and back-office transaction processing in "wireless web" mode. Freiherr (1998) stressed that the reason why wireless devices are popular is that they facilitate the flow of information. It might relieve nurses and other clinicians of the need to go back to a central location to check the latest doctors' orders. Freiherr (1998) also addressed the issue of the ability of wireless Ethernet networks to provide interactive bed-to-bed communications between wireless and hardwired monitors, thereby enabling healthcare practitioners to call up patient data instantly at any bedside.

Bergeron (2000) considered that the development of wireless technology lagged behind cabled communications simply because the technology had not been sufficiently developed when the first cables were laid; however, he argued that the value of wireless technology consists in instantly delivering information. By integrating wireless technology into their everyday work processes, people of all professions are transforming downtime into uptime so they can provide better service to their clients.

Senese (2003) considered that utilising the wireless technology in hospital has two benefits. Firstly, it provides the most up-to-date patient information available; secondly, it provides the ability to update this information. Moreover, he also addressed security and the protection of data as a significant factor when considering the deployment of any wireless technology (Senese 2003). Sims (2003) also addressed the researcher's concern about challenges to the security of wireless access: firstly, unauthorised rogue access points are the most daunting challenge created by WLAN (Wireless Local Area Network) technology; secondly, wireless networks provide anonymity and ease of access to the enterprise network; finally, the rules and regulations require that data travelling over a public network be encrypted. All these issues should be considered when deploying wireless technology in the hospital to prevent the disclosure of private information.

2.4.3 Scanner and Barcode Systems

There are not many papers reviewing scanner and barcode systems in healthcare; however, the researcher considers these applications useful for data entering for nurses.

The adaptation to PDA use of commercial applications of technology, such as bar coding, continues in healthcare at a rapid pace (Noble 2000:28).

Other researchers, such as Bergeron, consider that scanners have the potential to settle one of the greatest medical challenges outside of the diagnostic process, which is keeping accurate and complete records (Bergeron 1998 b). Bergeron (1998 a) noticed that despite continued predictions of paperless practices, most medical documents - from referral notes to discharge summaries - simply are not available in digital form. The solution to this issue is using Optical Character Recognition (OCR) software in conjunction with a scanner to capture and translate printed text into files that can be read by a word-processing, database, or spreadsheet program. He also recommended that a pen scanner with OCR software could be readily put into a clinician's pocket, and text beamed directly to a PDA and then to a PC or Mac through the usual PDA's syncing process (Bergeron 1998 c). Another author suggested a technology that will enable us to carry within our bodies a chip that could hold untold amounts of personal information, and the entire system consists of an inserter, a proprietary hand-held scanner, and a secure database containing patient-approved medical information (Wallace 2004). More than 1,000 people have tiny I.D. chips implanted beneath their skin that give emergency room personnel instant access to that person's medical information (Silberner, 2005). Snyder (2004) suggested five guidelines to implement good barcode technology in the healthcare area:

- Select an appropriate symbology,
- Make the narrow bar in your bar code as large as possible,
- Maximise your bar height,

- Create the best contrast possible,
- Do not violate the quiet zone.

2.5 Chapter Summary

Although palliative care is a relatively new member of the healthcare family, it plays a fairly important and significant role in assisting patients to cope with terminal disease. With the workflow analysis as a systematic analysing tool, the researcher can analyse and clarify the daily practice of palliative care nurses, and identify opportunities to apply information and communication technology to the nurses' practice. The latest technologies, such as PDAs, wireless technology, as well as the scanner and barcode system, have the possibility to ease the stress and pressure of the nurses' work and provide better service to the patients.

Chapter 3: Methodology

3.1 Introduction

As workflow is impacted by the technology and tools available for executing the tasks, workflow analysis is applied in this research to help the researcher analyse implementations of ICT to optimise efficiency, effectiveness, cost reductions and other benefits for organisations. The purpose of this research is to understand the workflow of the nurses in tending patients in palliative care and to seek opportunities where information technology, such as a PDA system, could be applied to improve the work efficiency and effectiveness of these nurses. The goal of this chapter is to address the proper research methods that could be used to accomplish the research purpose. The methods discussed here are for gathering data from both the palliative care ward and community healthcare centre.

3.2 Conducting the Research

3.2.1 What is the Research About?

Research is an art aided by skills of inquiry, experimental design, data collection, measurement and analysis, by interpretation, and by presentation (Greenfield 2002:3).

The most important aspect of the research is to gather information for solving the problem. The information is anything that we find "out there" that might support our answer to a question or solution to a problem (Booth et al 2003:39). Although there are various kinds of research, the basic characteristics shared by all of them are that they are, or aim to be, planned, cautious, systematic and reliable ways of finding out or deepening understanding (Blaxter et al 2001:5).

This research focuses on the workflow analysis of nurses' daily practice in palliative care. Drew (1980:10) suggested that the research idea must be distilled into a very specific question. Therefore, the idea of the researcher can be transformed into the following question: With the help of workflow analysis, what kind or kinds of information and communication technology (ICT) can be applied to the nurses' daily practice in the palliative care area to improve work efficiency and effectiveness?

The objectives of this research are:

- To understand and document nurses' work practice in palliative care;
- To identify opportunities to change practice. What, when and how ICT can be effectively applied to improve nurses' work practice;
- To identify what kind of technology can be effectively applied in palliative care.

By collecting and analysing information of nurses' daily working process, this research aims to provide an understanding of the features required by an information system which would improve the work practice of nurses in palliative care. Once the system

requirements are established a system can be developed incorporating these features. The system can deliver the following benefits to palliative care:

- Innovation of process control: improve the management of decision-making and authorisation.
- Improving patient service: adoption of effective methods of patient treatment, such as remote analysing systems, database, tele-medicine systems etc.
- Improved flexibility: bring appropriate means to deal with different occurrences. Workflow management technology could pinpoint the appropriate key factor without disrupting the normal routine to help nurses to deal with certain sudden occurrences.
- Cost efficiency: by effectively applying ICT to improve communication and retrieval of information.

3.2.2 Ethics Considerations

As research in healthcare area always involves human beings, it is essential that the researcher consider the ethical issues involved in the research. Nowadays, virtually every journal that publishes human or animal research has a policy statement outlining the ethical treatment of the subjects and declaring that the informed consent of the subjects has been obtained. Investigators must declare that they have complied with that policy (Berg et al 2004:16). Consent forms, which explain the procedures involved in the research, must be signed by the research subjects to indicate their willingness to participate in the study (Drew 1980:39). Both Drew (1980:39) and Berg et al (2004:16)

suggested that this consent had to be “informed consent”. Grbich (1999:71-72) advised that the content of the informed consent should include:

- The aim of the study;
- The personnel involved;
- A description of possible outcomes, such as:

  Benefits or lack thereof;

  Any potential harm that participants may suffer;

  An offer to answer questions at any time (the contact information of the researcher, the supervisor and the ethics committee should be included);

  A promise of anonymity and confidentiality, and an indication of how these will be maintained;

  Clarification that the participant is free to leave the study at any time and is not obliged to answer any questions they feel uncomfortable with;

  An indication that should any of the above change, the subject will be contacted and their further permission sought.

The ethics approval was issued by the Ethics Committee of University of Wollongong as well as the Illawarra Area Health Service (IAHS) (See Appendix 1). A two-page informed consent letter, according to the contents above, was prepared (See Appendix 1). All of the nurses interviewed and observed signed the consent form.

3.2.3 Experiment Site

Based on the time and nature of this research and the resources available, it was determined that the scope of this research would be confined to the Illawarra region. The health organisation involved in this project was the Illawarra Area Health Service (IAHS). The investigation sites were the palliative care ward at Port Kembla Hospital and the community healthcare centre at Piccadilli Centre; both organisations are branches of IAHS. The initial communication with the IAHS was via emails, and discussions were conducted with the key persons in regional palliative care.

Four registered nurses out of the total number of seven nurses in the palliative care ward participated in this study. Almost all the nurses' work activities in the ward were observed. This ward is the only palliative care ward in the Illawarra region. Two registered nurses and a nurse specialist in the community healthcare centre were interviewed in depth. These three nurses can be the samples, as other palliative care nurses perform similar daily tasks.

3.3 Method and Approach

After the research goals and question have been determined, the next significant step is the research design. A researcher must carefully and logically consider the blueprint, or design, of a study so that it will yield meaningful and accurate results (Berg et al 2004:161). A good research design can enable the researcher to obtain enough, valid, and rigorous information for the research, which therefore, leads to a satisfactory result.

Validity is one of the important aspects of the research design. From a research point of view, validity is the extent to which a test measures what it is supposed to measure (Berg et al 2004:162). It means that the researcher has accessed and accurately represented the social world being studied (Grbich 1999:59). In qualitative research, Grbich (1999:61) also considers another important aspect - rigour. It is the researcher's responsibility to use as tight a research design as possible. Based on these considerations, the researcher of this project uses a series of scientific methods to conduct this research.

3.3.1 Exploratory Study

An exploratory study is undertaken when little is known about the situation at hand, or when no information is available on how similar problems or research issues have been resolved in the past (Cavana et al 2000:108). The researcher used the exploratory study to gather information on both palliative care and workflow management technology to enrich the understanding of the research topic. There were two resources for this exploratory study: the library and the Internet.

3.3.1.1 The Library Resources

Library searches for books and journals in the related research area are the traditional way to find numerous resources for research. However, as Abson (2002:100) suggested in his article about the use of information, we need to evaluate the usefulness and accuracy of the information we have found and interrogate it.

3.3.1.2 The Internet

Another way for a researcher to find information is from the Internet. The researcher searched material of workflow, workflow management systems and palliative care on the Internet. Although it makes the accessibility to the information easier to the researcher, it can also be bewildering and time-consuming (Blaxter et al 2001:107), because there is a vast amount of information. Denscombe (2003:56-59) lists the advantages of the Internet research as: cost savings, higher researcher safety, data accuracy, access to large research populations and acceptability to respondents; but also lists the disadvantages as: sample bias, lack of quality control, pace of change and neglect.

3.3.2 Descriptive Study

The researcher conducts a descriptive study to ascertain and describe the characteristics of the variables of interest in a situation (Cavana et al 2000:109). The researcher gathers information from individuals, organisations or other areas where relevant information may be acquired. This information enables the researcher to understand the work process of palliative care in practice and the workflow management systems.

The research question is: What kind or kinds of information and communication technology (ICT), with the help of workflow analysis, can be applied to the nurses' daily practice in the palliative care area to improve work efficiency and effectiveness?

After adequate background information has been gathered, the next step is the data collection. The researcher needs to determine the most appropriate method of data collection for the research.

3.4 Data Collection Method

Qualitative research and quantitative research are the two major methods for data collection.

3.4.1 Qualitative or Quantitative Method?

Qualitative research and quantitative research have their own perspectives in terms of method and emphasis. The definition of qualitative research is that it is multi-method in focus, involving an interpretive, naturalistic approach to its subject matter. Qualitative researchers study things in their natural settings, attempting to make sense of, or interpret phenomena in terms of the meanings people bring to them. This involves the selective and systematic collection and use of a variety of empirical materials – case study, personal experience, introspective, life story, interview and observational, historical, interactional and visual texts – that describe routine and problematic moments and meanings in people's lives (Denzin & Lincoln 1994:2, cited by Thomas 2003:2-3). On the other hand, quantitative research involves using numbers and statistical methods to support evidence. It tends to be based on numerical measurements of specific aspects of phenomena, abstracts from particular instances to seek a general description or to test causal questions, as well as to seek measurements and analyses

that are easily replicable by other researchers (King, Keohane & Verba 1994:3-4, cited by Thomas 2003:3).

Qualitative and quantitative research methods have many differences. Qualitative research focuses on exploring, in as much detail as possible, smaller numbers of instances or examples that are interesting or illuminating, and aims to achieve 'depth' rather than 'breadth'; on the other hand, quantitative research methods emphasise relatively large-scale and representative sets of data, and are often focused on the gathering of 'facts' (Blaxter et al 2001:64). Berg and Latin (2004:214-215) summarised four major differences between qualitative and quantitative methods. Firstly, in qualitative research, "the design and measurement of variables are flexible and dependent on the context of data collection". However, in quantitative research, "they are set or defined before data are collected". Secondly, in qualitative research, it is "assumed that only partially objective accounts of the world can be produced and interpreted in a variety of ways". On the other hand, "the quantitative paradigm assumes that variables can be measured objectively". Thirdly, in the qualitative research paradigm, "the logic is reversed, or is inductive: it proceeds from specific to general". In contrast, quantitative research is "based in part on deductive reasoning, in which the logic proceeds from general to specific". Finally, qualitative research allows "an open-ended and flexible approach to assessment". However, "the other entails measurement instruments and data analysis that is expressed in statistics".

Qualitative research aims to elicit the contextualised nature of experience and action, and attempts to generate analyses that are detailed, 'thick' and integrative in the sense of relating individual events and interpretation to generalised concepts and patterns (Rice

& Ezzy 1999:1). Qualitative research also treats human-as-an-instrument for the collection and analysis of data (Cavana 2000:135). Wilkie (1997:73) therefore suggests that qualitative research methods are undoubtedly the best research methods for researching many aspects of palliative care.

Based on the above reasoning, the researcher determined that qualitative research methods were most appropriate to conduct the field study for this project, and adopted the two main qualitative data collection methods: interview and observation.

3.4.2 Interview

Interviewing is the most common technique used to gather research information (Grbich 1999:84). It is assumed that all relevant information is not known prior to the research (Rice & Ezzy 1999:54). The researcher has to be well prepared and organised before actually being with the interviewee. There are four main stages suggested by Gillham (2000:37): the introductory phase, opening development, interview and closure.

The researcher prepared a detailed information sheet for the purpose of this research. This includes the methods of data collection, the potential benefits to the interviewees and their organisation, and the length of the interview. As the interview would be conducted in a ward or healthcare centre, the researcher also prepared the consent forms for the interviewed nurses to complete. Before each interview, the interviewee was given some time to read the material and ask the interviewer questions to clarify the general information about the research. The interview took a maximum of one hour per

interviewee. At the end of each interview, the researcher would summarise the interview, make another appointment if necessary and thank the interviewee.

The interview process started with unstructured interviews, progressed to semi-structured, and finally structure is imposed. At the phase of the unstructured interviews, the researcher gathered the basic background information about the nurses' daily practice in palliative care. Equipped with the information from the previous stage of the research, one researcher could move on to semi-structured interviews with a list of issues to be addressed and questions to be answered, as suggested by Denscombe (2003:167). The final phase of the interview process was the structured one, which targeted the issues the researcher sought clarification on.

During the whole interview process, the researcher took notes rather than taping the conversation. These two methods have advantages and disadvantages and Blaxter et al (2001:173) compared the two saying: note-taking gives the interviewer an instant record of the key points of an interview, however, it can be distracting; a tape recorder, on the other hand, can enable the interviewer to concentrate, but it can make the interviewee anxious and less likely to reveal confidential information.

Another concern about obtaining the actual information during the interview was to control the quality of information. The interview conversation can be a potential source of bias, error, misunderstanding or misdirection (Holstein & Gubrium 2002:112). To avoid the possibility of biased information, the researcher adopted the strategy of asking the questions as unambiguously and clearly as possible. Some similar questions were asked of different interviewees at different interview sites.

3.4.3 Observation

Observation was another significant technique used in this project. Gathering information by means of observation involves watching and/or listening to events, then recording what occurred (Thomas 2003:60). In Denscombe's book (2003:192), the professor stated that the essential kind of observation in qualitative research is participant observation. It is a technique of unobtrusive, shared or overtly subjective data collection, which involves a researcher spending time in an environment observing behaviour, action and interaction, so that the researcher can understand the meanings of the circumstance and can make sense of everyday life experiences (Grbich 1999:123-124). Based on this definition, the researcher determined that participant observation would be very appropriate for this study. It is used to infiltrate situations, sometimes as an undercover operation, to understand the culture and processes of the groups being investigated (Denscombe 2003:192). The practice of participant observation can be ranged on a scale from participation to observation and overt to covert, and can be "unobtrusive observation" and "participant comprehension" (Collins 1984:55-56, cited by Blaxter et al 2001:176). Without trying to become an integral part of the organisational system (Cavana 2000:160), the researcher of this project conducted an overt participant observation spending some time with every shift in the ward.

Participant observation has appealing advantages and inevitable disadvantages. It allows the observer to get as close as possible to the action as it is actually happening. The observer can be flexible and adapt to, or follow up, events. However, the observer needs high research skills and focus on a small research scope (Grbich 1999:124). It can be time-consuming, as the researcher has to spend time on site while events unfold.

To avoid bias whilst gathering information from interviews, the researcher selected two or three nurses on different shifts in the ward to observe. Afterwards the information was compared, and the questions were clarified by follow-up interviews with nurses.

3.4.4 Justification of Research Method

This research is about discovering the daily practice of the nurses in palliative care. As the lack of information about the nature of the research from the researcher's background and other researchers' work, the proper method to conduct this research is the qualitative research method. The two methods of data collection, interview and observation, offer the benefit of being able to immediately capture information in this area. The chosen research sites and the nature of the investigation also favour this method. This research method enables the researcher to get sufficient and precise data to produce the workflow diagrams to showcase the work processes of the nurses' daily work. With these diagrams for guidance, the researcher can analyse which part of these processes can be facilitated by ICT, and what type of technology can be implemented.

3.5 Analysing the Data

The goal for the collection of the data is to abstract nurses' daily practice in palliative care into workflow diagrams. The workflow diagrams should tell the story of who is doing what for which purpose at what specific time and location. This is the first phase of the whole analysis of this project. The next phase is to analyse the diagrams to decide

which parts of procedure can potentially be improved by ICT. The final phase is to identify what type of ICT will be most suitable.

Whilst at the fieldwork stage, the focus was on analysing data for the purpose of finding questions and clarifying the processes. The researcher needs to interpret what has occurred. This was achieved by identifying the themes and sub-themes in the raw data that would provide an understanding of the phenomenon being investigated (Cavana 2000:170). At this stage of analysis, the title of each process is abstracted with the meaning annotated from the notes taken at the field work. The sequence of the procedures within each shift is identified. Similar processes are identified from different shifts to find the relationship between the shifts. According to the sequence and relationship of these processes, the flow charts of workflow are readily produced.

By analysing these workflow diagrams, procedures, which waste nurses' time or energy, can be identified and improved by ICT applications. After discussions with the nurses, the researcher can determine which parts of these procedures are able to be improved. This is the second phase of the analysis. The final analysis, which can find the appropriate technology, is to refer to the broad and in-depth literature review. The same or similar use of technology from other applications can have the potential to be applied in palliative care to improve the nurses' work process.

3.6 Research Plan

This research project is conducted sequentially starting with the determination of the research purpose. The next stage for the researcher is literature research. After determining the research method and the method of qualitative data collection, interviewing and observation are conducted at the research sites. This is the third stage of the research. The fourth stage is to analyse the data collected at the research sites. Workflow diagrams are generated and described in this stage. Finally, the last stage of this research project is to discuss the findings of previous research and make recommendations. The opportunities of applying ICT to palliative care are identified. The suitable technologies for applications are recognised. This research project will be concluded at this stage.

3.6 Chapter Summary

After in-depth comparison of qualitative and quantitative research, and analysis of methods of research that are relevant to this study, the researcher adopted the two data gathering methods of qualitative research: interview and observation. It was determined that the workflow diagrams should be produced for understanding the daily work practice of nurses in the palliative care ward and community healthcare centre. Utilising the appropriate research methodology, the researcher collected sufficient data. This laid the foundation from which the results of this research could be drawn. These results are addressed in the next chapter.

Chapter 4: Results

4.1 Introduction

Using the method discussed in the previous chapter, data from interviews and observations were gathered. Both interviews and observations were conducted in the ward environment. In the community healthcare centre, the most suitable data gathering method was interview. The reason for this was addressed in the last chapter (Chapter 3: Methodology). After analysing the data, the workflow diagrams were produced for both the ward and the community healthcare centre.

This chapter will give a detailed description of the workflow diagrams drawn both for the ward and the community healthcare centre. Finally, the issues that nurses raised with the researcher will be addressed. The following chapter (Chapter 5) will give recommendations from the researcher to resolve the issues and gain efficiency for the nurses.

4.2 Nurses' workflow in the ward

The palliative care ward is the most important and significant investigating site for this research. The researcher has spent more than two-thirds of the research time (about 3 months in total) collecting data in the palliative care ward. The work practice of the

nurses appears to be more complicated and restricted compared with the visiting client situation in the community healthcare centre. It includes the following modules: morning shift, afternoon shift, night shift, admission, deterioration and death. The nurses' workflow will be described in sequential order.

4.2.1 Morning Shift

There are normally three nurses in the morning shift, starting at 7:30 a.m. and finishing at 3:30 p.m. During this time period, the nurse manager, resident doctor and the majority of the other doctors are working. The major medical activities for the patients are conducted during this shift. Therefore, the morning shift is the most significant shift in the ward. Figure 4.1 is the nurses' workflow diagram for this shift, showing the nurses' work practice in the palliative care ward at Port Kembla Hospital.

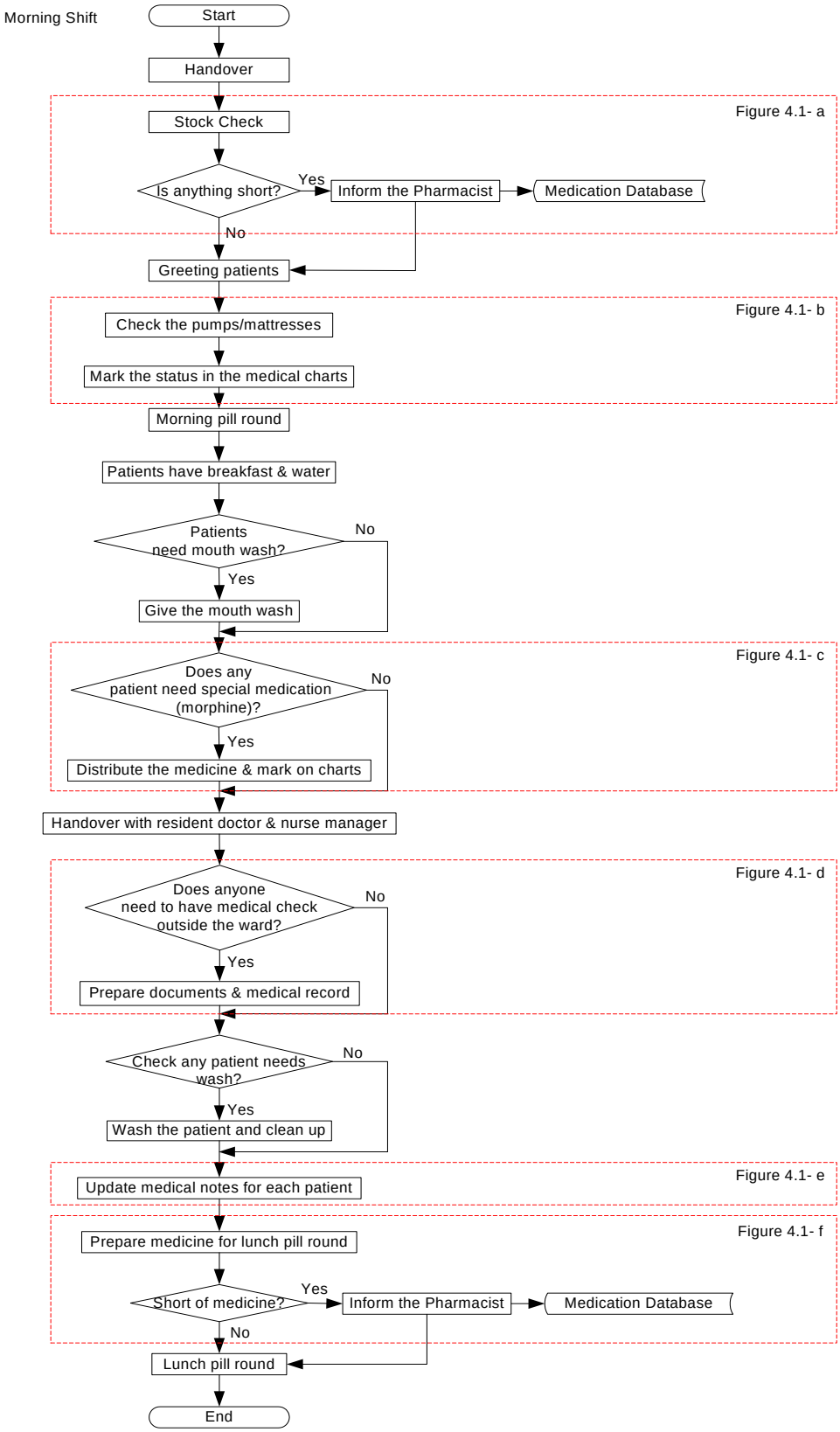

Figure 4.1 Nurses' Work Process in Morning shift

The marked parts, such as Figure 4.1 – a, are the activities that could benefit from the utilisation of information technology. Suitable technologies that could be used for these activities will be discussed in the next chapter (Chapter 5). This part of the chapter is devoted to describing the major procedures of the nurses' morning shift. The person in charge of the morning shift was the team leader.

4.2.1.1 Handover

Handover occurs at the start of every shift. At handover, the nurses from one shift pass on information of each patient to the nurses of the subsequent shift, which takes an average of 5 minutes to accomplish. This can help the nurses on the shift quickly grasp the situation of every patient and take precautions for situation changes during the shift. The brief, but detailed, information is written on a form named a Handover Sheet.

4.2.1.2 Stock Check (Figure 4.1 – a)

The next major activity after handover is to check the stock of medication. Sufficient supplies of medication for the daily requirements of patients and for emergency situations are essential for the efficient running of the ward. The team leader checks the stock with one of the nurses from the previous shift. If there is a lack of a certain medicine, the nurse will fill out the appropriate form, and send this form to the pharmacists. In response to this requisition form, the pharmacists deliver the medicine listed on the form to the ward.

4.2.1.3 Check Pumps (Figure 4.1 – b)

The activity of “Check Pumps/Mattresses” is conducted together with greeting the patients. The nurses move through the ward checking the patients’ mattresses. This activity is to ensure patients are not getting bedsores or ulcers, and to mark their status on the form.

4.2.1.4 Morning Pill Round

The next important procedure, the morning pill round, is to distribute medicine to the patients. One of the registered nurses does this, while the other two nurses clean up and wash the patients. The morning pill round is the first major medicine distribution in the ward. The nurse gives the pills one by one to a particular patient, and sometimes helps the patient take the medicine if necessary. The distribution of each medication is marked on the medication chart of the patient. During these rounds nurses might be interrupted by the patients’ requests. Patients can ring a bell to ask for assistance. Sometimes a nurse distributing medicine might be interrupted, and would need to check the medication chart once more when they return to the task.

4.2.1.5 Morphine Round (Figure 4.1 – c)

After breakfast, most patients need a mouth wash, especially the cancer patients. Then the nurses will conduct the morphine round. Most of the cancer patients have pain symptoms; some of the other patients with terminal chronic diseases have pain as well.

Some of the special restricted (S8) pain relief medications, particularly morphine, are often used in the ward. Nurses usually do the rounds to see if there is anyone who needs pain relief medication; alternatively a patient with pain symptoms can press the button near his/her bed to indicate to the nurses that he/she needs medication. The law requires two nurses to sign in the restricted medication usage book before giving the medication to the patient.

4.2.1.6 Handover with Nurse Manager and Resident Doctor

The handover with the Nurse Manager and Resident Doctor is one of the major procedures of the morning shift. Only the morning shift has this procedure. The condition of each patient is carefully discussed among the nurses, the nurse unit manager and the resident doctor. Information on the condition is gathered from the nurses of the previous afternoon shift and the previous night shift. The nurses, nurse unit manager and resident doctor decide on further treatment according to the patient's condition. Sometimes, the palliative care specialist, the higher-level doctor, may be called in to attend the handover to deal with a critical patient.

4.2.1.7 Prepare the Documents (Figure 4.1 – d)

Some of the patients may need to go to other hospitals to have examinations. At this stage, nurses need to prepare all the patient's documents including notes, medication charts and medical history. These will go with the patient.

4.2.1.8 Update the Medical Notes (Figure 4.1 – e)

On each shift the nurses need to update the medical notes of the patients. Nurses describe a patient's condition, developing symptoms and treatments on the medical notes. Some of the information is provided on the Handover Sheet. This is another major task for the nurses on every shift.

4.2.1.9 Prepare the Lunch Pill Round (Figure 4.1 – f)

The lunch pill round is conducted together with checking the stock. If the nurse finds that any medicine is short, the pharmacists will be notified. Particularly on Fridays, the nurses need to store enough stock for Saturdays and Sundays. Normally, the lunch pill round is conducted around lunchtime. The activities that the nurses perform are similar to those in the morning pill round.

4.2.1.10 Other Activities

Nurses need to wash the patients and make their beds to provide the maximum comfort for the patients. The patients can have a shower, a bath, or even a spa bath. These can also help to relieve patients' symptoms.

The patients will have a rest after lunch for one and a half to two hours. While the patients are having their rest, the nurses of the afternoon shift gradually arrive. The afternoon shift starts at 3:30 p.m.

4.2.2 Afternoon Shift

The afternoon shift is the one that normally requires nurses to deal with the patients' family members, as it is from 3:30 pm to 11:00 pm. At this time, the patients' family members are likely to visit. They may have questions and enquiries about the patients' conditions and symptoms that require clarification from the nurses. The nurses will provide explanations and comfort to satisfy the patients' families. Figure 4.2 illustrates the nurses' main duties in the afternoon shift. It shows the major procedures that the nurses accomplish in this shift.

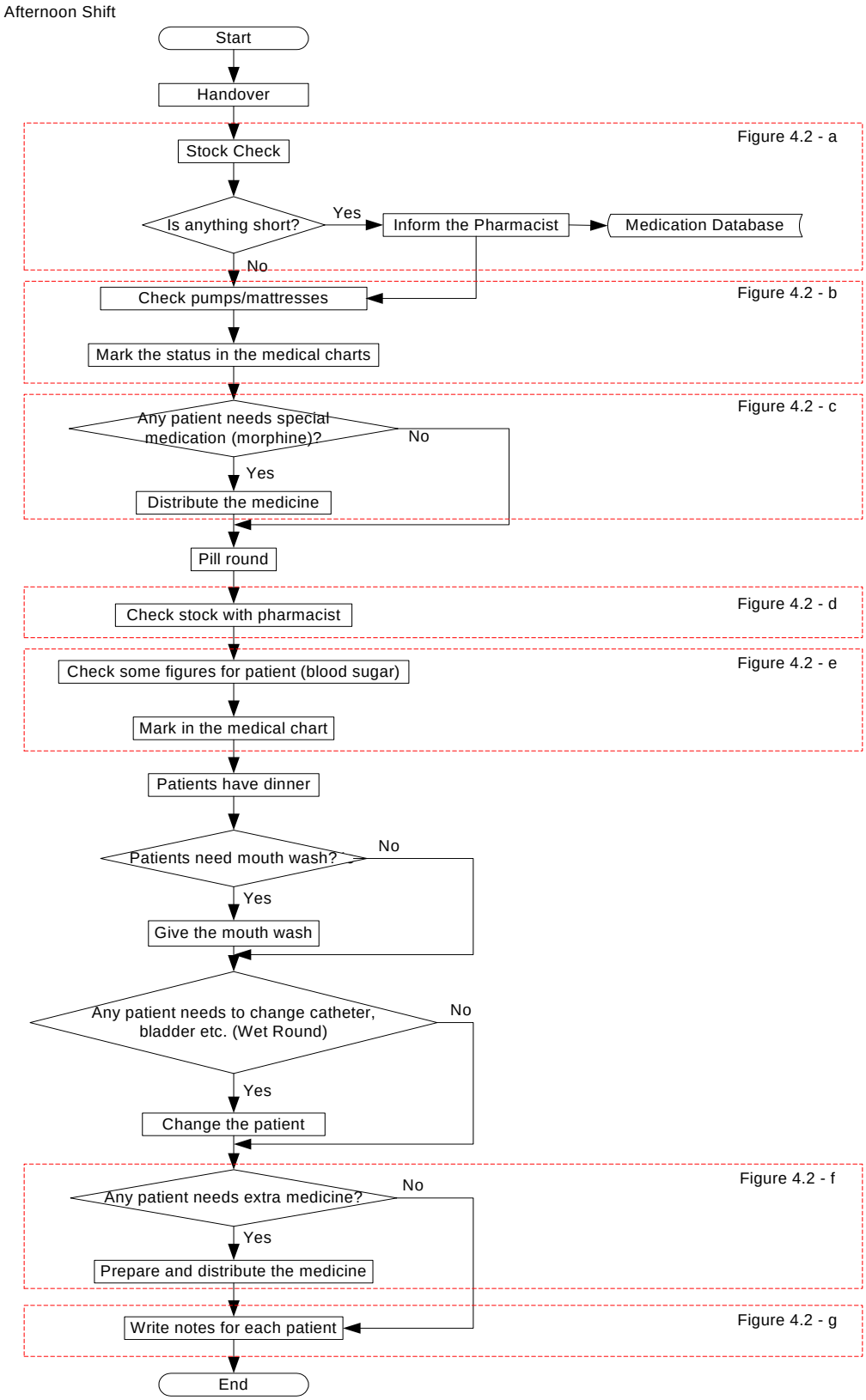

Figure 4.2 Nurses' Process in Afternoon Shift

4.2.2.1 Handover

Like the morning shift, the first major task for the nurses, when they start the shift, is the handover. The handover is one of the most important procedures the nurses will do and involves transferring the information of each patient. This can help the nurses on the shift quickly grasp the situation of every patient and take precautions during the shift.

4.2.2.2 Stock Check (Figure 4.2 – a)

The next procedure, which the nurses will do after the handover, is to check the stock. The medication stock in the ward is crucial for the nurses' daily practice. The nurses need to keep a certain amount of stock to cope with emergency situations. At present, when the nurses find that there is a lack of certain medication, a form is filled out to inform the pharmacists of the hospital what is out of stock. Then, the pharmacists deliver the medication to the ward according to the requirement.

4.2.2.3 Check Pump and Mattress (Figure 4.2 – b)

The pumps and mattresses ought to be checked every shift. This kind of pump and mattress is used to protect the long-term bedridden patients from getting bedsores or ulcers. Normally, one of the nurses on the shift does the check while greeting each patient. The status of every pump and mattress is marked on the medical chart of the patient.

4.2.2.4 Morphine Round (Figure 4.2 – c)

In this process, nurses on the afternoon shift check the patients to ascertain whether or not they need pain relief medication. Most patients with cancer or other terminal chronic diseases have pain symptoms. Pain relief medications, particularly morphine, are often used in the ward.

A patient with pain symptom can press the button near his/her bed to indicate to the nurses that he/she needs medication. As described previously, the distribution of the pain relief medication needs two registered nurses to sign the restricted medication book and the patient's medication charts.

4.2.2.5 Pill Round

The afternoon shift only has one pill round around 5:00 p.m. to 5:30 p.m. One of the nurses on the shift does this task. While the nurse distributes the pills to the patients, she/he has to mark the time and dosage, and sign on the patient's medication chart. Sometimes the nurse may be distracted by the patient's request or something else and will need to recheck the patient's medication chart to find out where she/he was.

4.2.2.6 Check the Stock with Pharmacist (Figure 4.2 – d)

The pharmacist comes to the ward once a week during the afternoon shifts to check the medication stock with the nurses. All of the medication charts will be checked to see if there is a shortage of any medicine. The shortage will be supplied straight away.

4.2.2.7 Check the Patient's Figures (Figure 4.2 – e)

Nurses may also need to check certain specific conditions of some patients, for example, blood sugar levels. This is done based on the patient's situation or in response to a request. The checking will be marked on the medical chart of that patient.

4.2.2.8 Extra Medicine (Figure 4.2 – f)

Some patients may need pills after dinner depending on their treatment. Nurses will check all the medication charts of the patients, and then assign the appropriate medicine to those patients. This will be marked on the medication charts of the patient.

4.2.2.9 Update the Notes (Figure 4.2 – g)

The patients' medical (progress) notes have to be updated for each shift. This is one of the most significant tasks that the nurses will do on every shift. The update is based on what happened during the shift. Normally, it takes the nurses approximately one hour to finish the updating.

4.2.2.10 Other Activities

Normally, between 5:30 p.m. and 6:30 p.m., the patients will have their dinner. After dinner, nurses help them wash their mouths. This cleans and moistens the patients' mouths. Then, the nurses will conduct the "wet round", to change the catheters of some of the patients.

Many family members of patients visit during the afternoon shift. Thus, this is the most crowded shift on the ward. The nurses need to spend some time communicating with the patients' family members. The afternoon shift usually finishes at approximately 11:00 p.m. After this the night shift starts.

4.2.3 Night Shift

The night shift starts at 11:00 p.m. and ends at 7:00 a.m. There will be two nurses on this shift. The aim of this shift is to help the patient get as much rest as they can. So in this shift, the nurses try their best to help, but not disturb the patients. Nurses check each patient almost once per hour to see if they need anything to make them comfortable and get more rest. Figure 4.3 shows the major procedures the nurses do in this shift.

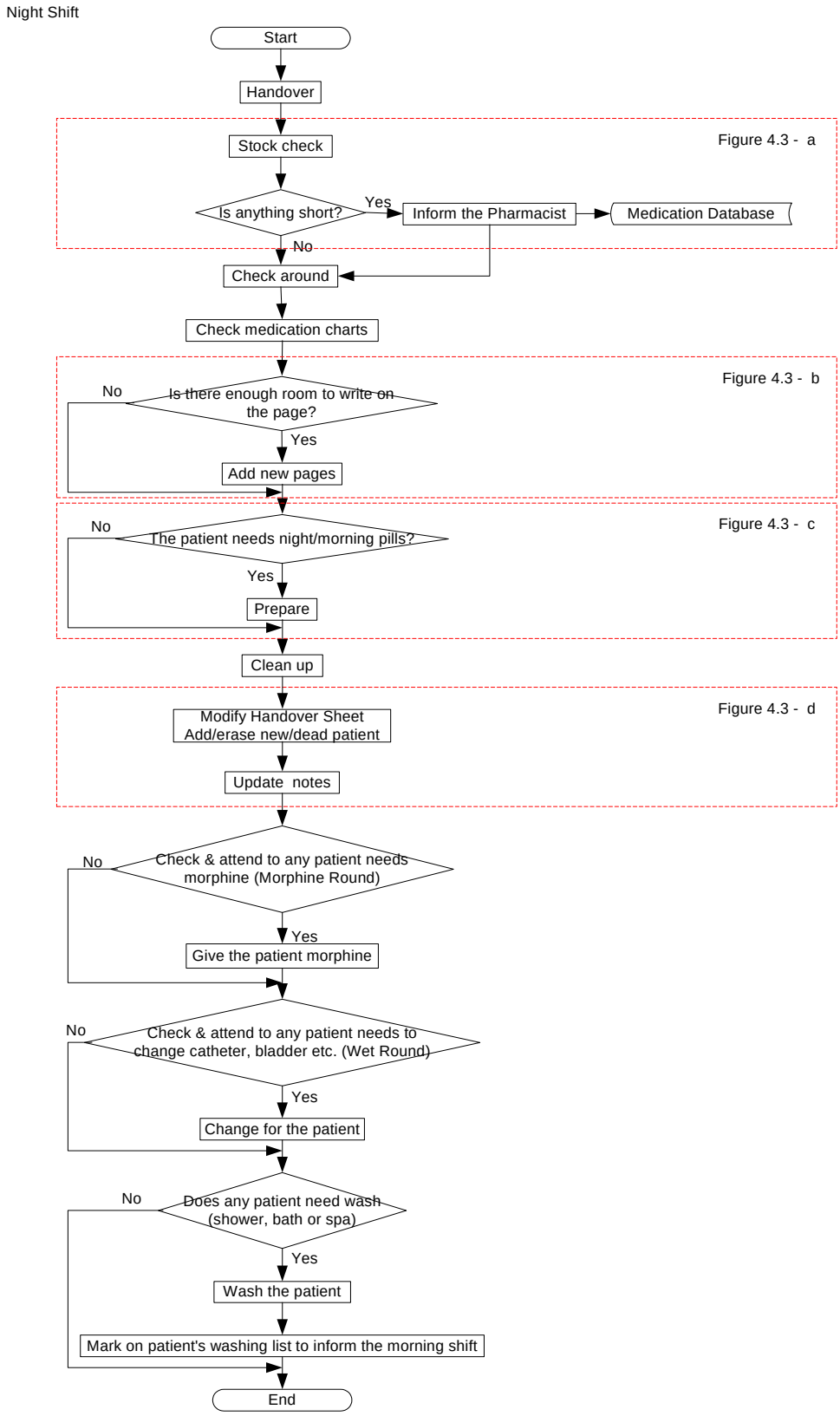

Figure 4.3 Nurses' Work Process in Night Shift

4.2.3.1 Handover

The handover is the process by which nurses on one shift pass on information about each patient to the nurses on the next shift. The brief, but detailed, information is written on the form named a Handover Sheet. This information can help the nurses on the new shift quickly get an understanding of each patient's situation.

4.2.3.2 Stock Check (Figure 4.3 – a)

The process of "stock check" on the night shift is again to guarantee that the quantity of the medication is sufficient for this and other shifts, as there normally is not much medication to be given out during this shift. As for the other shifts, the nurses on this shift fill out an Incident Report Form in the case of there being a shortage of certain medication.

4.2.3.3 Check Medication Charts (Figure 4.2 – b)

Frequently, the medication charts in the patients' medical folders need extra pages added by this stage. So this is done during the night shift to save nurses on busier shifts having to do this.

4.2.3.4 Prepare the Medicine (Figure 4.2 – c)

While checking each patient's medication chart, the nurses check whether or not the patient needs night medicine. If the patient does, the nurses prepare and distribute the medicine accordingly. The nurses on the night shift prepare the medication for the morning pill round ready for the next morning shift as well.

4.2.3.5 Update the Notes (Figure 4.2 – d)

The nurses update the notes in each patient's medical record. At this stage, they check if there is any information missing in the patient's documents, and whether they need to add some more chart or note pages. They also modify the Handover Sheet at this time, erasing the patients discharged from the Ward, making blanks on the form to indicate empty beds, and generally preparing it for the nurses on the next day's shift to fill out.

4.2.3.6 Other Activities

The nurses regularly do the rounds to check each patient's situation. If the patient needs morphine to relieve his/her pain, the two nurses would check the patient's medication chart to find out the appropriate dose, sign in the Morphine Book and administer the drug to the patient. If a patient needs a catheter changed, the nurse changes it straight away. In the morning, the nurses help the patients wash themselves. If a patient is washed, this is recorded on the patient-washing list to inform the next morning shift.

As the night shift is a relatively quiet shift, the nurses of this shift have more time to do the cleaning jobs, such as washing the patient and changing the patient's linen. However, all the tasks are aimed at providing a good environment for the patients to have more rest at night.

Since every shift may encounter the situation of admission, deterioration or death, it is necessary to describe the process of these three occurrences.

4.2.4 Admission

Admission is the beginning of the patient's hospitalisation in the palliative care ward. It is the only way that the ward accepts a patient. It can happen at anytime in any one of the three shifts. In this process, the nurses may use the database to check the information regarding contact details and medical records for the patient. They also need to inform the pharmacists to prepare the appropriate medication for the new patient. Figure 4.4 is the workflow diagram for Admission.

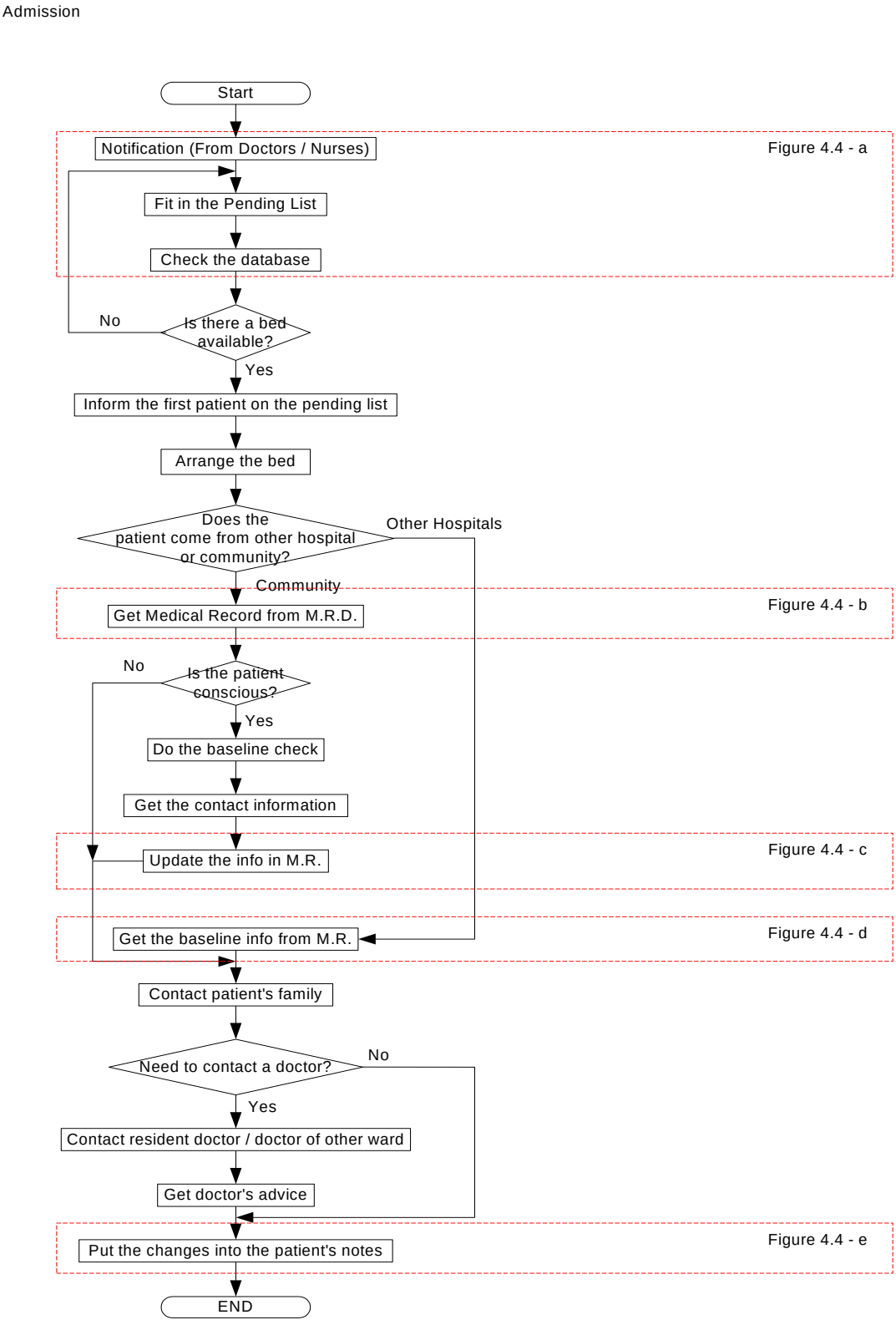

Figure 4.4 Nurses' Work Process in Admission

4.2.4.1 Notification (Figure 4.4 – a)

Generally the notification of hospitalisation of a patient is from the palliative care doctors or the nurses of other wards. It may reach the palliative care ward by telephone or fax. The nurses of the palliative care ward check whether there is a bed for the patient. If there is not, the patient will be put on a pending list to wait for the first available bed.

4.2.4.2 Admission

When a bed is available, the nurses of the palliative care ward inform the patient on the pending list. Before the patient's arrival, the nurses need to clean the bed and surrounding area. Sometimes, the bed needs to be rearranged because of the gender or the situation of that patient. When the patient has arrived, the nurses need to check the database or the intranet to get the doctor's letter and the patient's medical record number.

4.2.4.3 Checking (Figure 4.4 – b, Figure 4.4 – c, Figure 4.4 – d and Figure 4.4 - e)

The baseline checking of the hospitalised patient depends on where the patient is from: other hospital or the community. If the patient is from another hospital, he/she usually has all his/her documents and Medical Record, which are prepared by the medical staff of the hospital, ready with him/her. In this situation nurses of the palliative care ward do not need to do the baseline check. The information of the patient can be fully accessed. The nurses will fill in an Admission Kit for the patient, including: SNAP sheet (patient

contact information form), Bowel Chart, Medication Chart, FIVD Chart (Morphine Chart), Alpha Excel Check List (Mattress/Pump check), Nursing Care Plan, and Progress Notes. If the patient is conscious and able to make physical movement, the nurses will greet the patient, show him/her the environment of the ward and help the patient settle down in his/her bed. The nurses then contact the patient's family members telling them that the patient has arrived in the ward safely and the address of the ward. When the patient's family member(s) come(s) for the first time, the nurses need to show him/her around. They also need to inform the palliative care doctor of the arrival of the patient. The last thing for the nurses in Admission is to update the notes of the patient.

If the patient comes from community, he/she normally does not have enough documents or Medical Record with him/her. Thus, in this situation the nurses need to do a baseline check, if the patient is conscious. They will check blood pressure, skin, pulse and bowel. They ask the patient for family contact information, medication details and medical history. All of the information will be entered in the Admission Kit, including: SNAP sheet (patient contact information form), Bowel Chart, Medication Chart, FIVD Chart (Morphine Chart), Alpha Excel Check List (Mattress/Pump check), Nursing Care Plan, and Progress Notes. The nurses also need to write the care plan for the patient. They inform the Medical Record Department of the arrival of the patient and request the Medical Record for him/her. The nurses will show the conscious and moveable patient the environment of the ward. The doctors of the palliative care ward are informed and the notes are updated for the patient.

4.2.5 Deterioration

One of the purposes of palliative care is to make the patients and their family members comfortable at the terminal phase of the illness. While the patients are staying in the ward, their symptoms are generally stable. However, their conditions are inevitably deteriorating. Figure 4.5 is the workflow diagram representing the nurses' tasks when dealing with deteriorating patients.

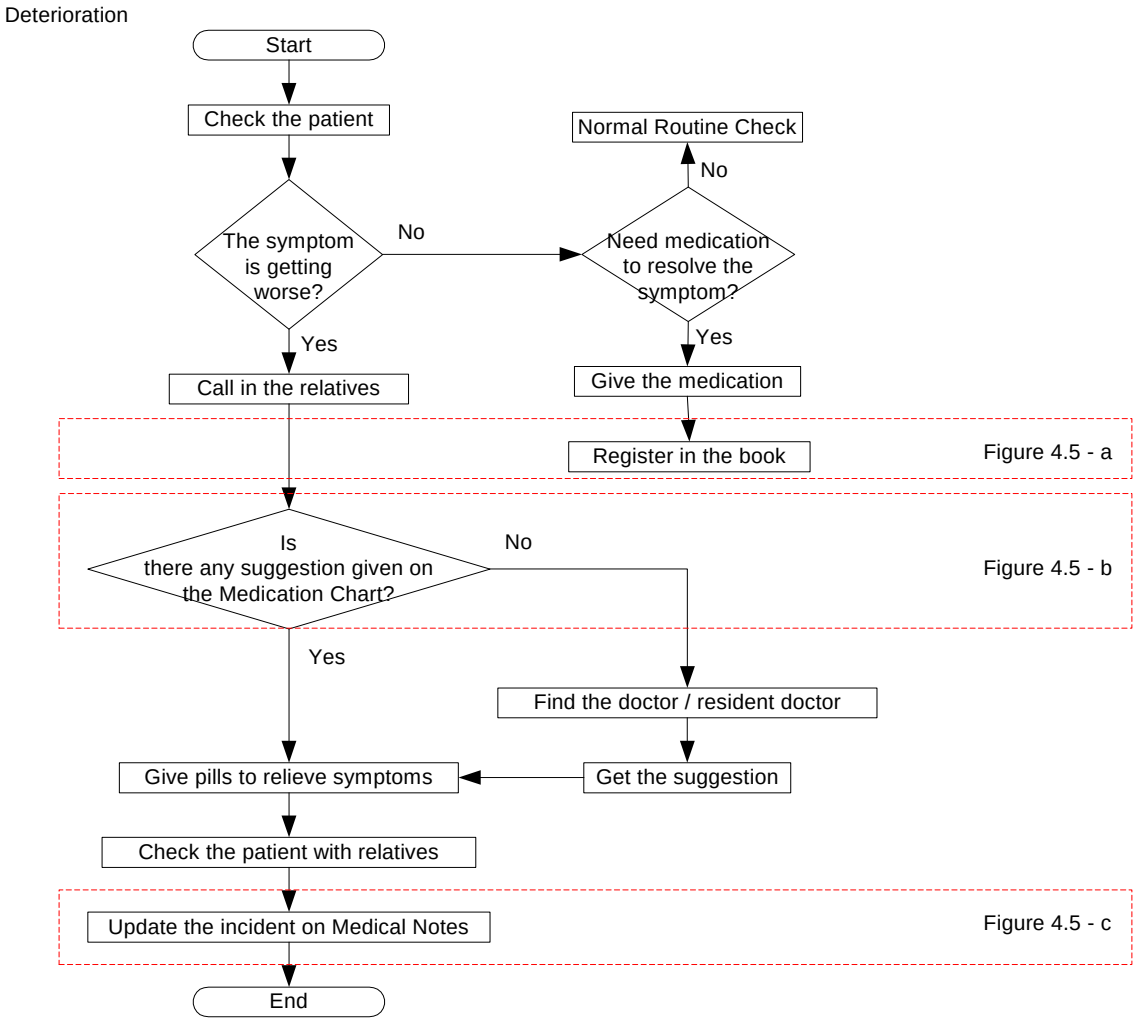

Figure 4.5 Nurses' Work Process in Deterioration

4.2.5.1 Check the patient (Figure 4.5 – a and Figure 4.5 – b)

Normally the nurses do the rounds to check each patient's situation at regular intervals. The patient can also press the button located at his/her bedside to ring the bell to request help from the nurses. Under normal circumstances, the patient will be given morphine or other kinds of medication to relieve the pain or other symptoms. The nurses will record in the register book information about the medication given to the patient. If it is detected that a patient's situation is deteriorating, this is a signal that the patient is dying. The patient's family members will be informed immediately.

Then the nurses will check the patient's Medical Record and Medication Chart to find the treatment suggested by the patient's doctor or other palliative care doctor. If there is not any suggested treatment available, the nurses will seek advice from the resident doctor in the ward, or the palliative care doctor, or a resident doctor in another ward. When the patient's family members arrive, the nurses will explain the patient's situation to them.

4.2.5.2 Update the Notes (Figure 4.5 – c)

After stabilising the patient, the nurses update the treatment on the patient's notes. This update can also be the reference for the future treatment of the patient.

Deterioration is almost inevitable in a patient who is staying in the palliative care ward. Another inevitable and sad stage is the death of the patient.

4.2.6 Death

The procedure involved when a death occurs is one of the tasks which palliative care nurses have to cope with. This is also the last important process for the patient staying in the palliative care ward. Figure 4.6 is the workflow diagram illustrating nurses' tasks for handling a death in a palliative care ward.

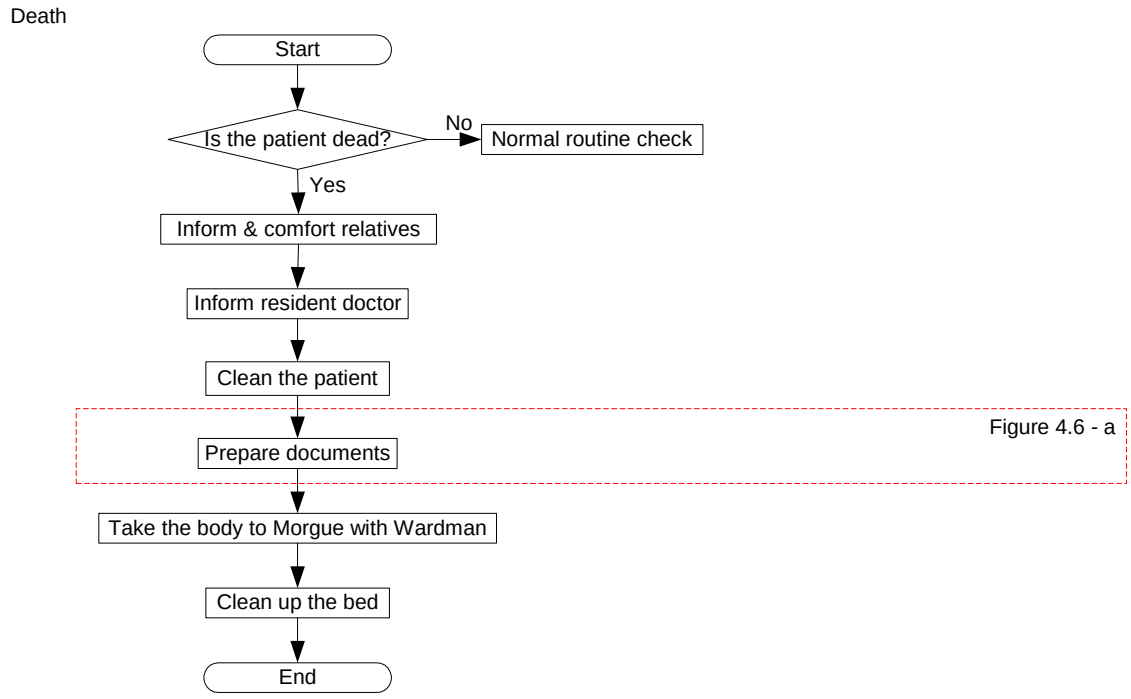

Figure 4.6 Nurses' Work Process in Death

4.2.6.1 Check the Patient

The nurses in the palliative care ward do the rounds to check the situation of each patient at regular intervals, probably once every hour or two hours. If they find a patient's situation changed, they would re-examine the patient to confirm the situation.

4.2.6.2 Death

After confirming the death of the patient, the nurses will inform the family members of the patient immediately, and the resident doctor. Then, they will clean the body and wait for the patient's family members to arrive.

4.2.6.3 Prepare the Document (Figure 4.6 – a)

There are several documents that need to be completed on the death of a patient. The nurses need to complete the Internal Notification of Death form and enter the details in the Patient Discharge Book. The resident doctor needs to write out a Death Certificate and Cremation Certificate. The nurses collect all these documents together with the Medical Record, Medication Chart, Notes and other documents of the patient. These documents are sent to the Medical Record Department of the hospital.

4.2.6.4 Other activities

The nurses inform the morgue to collect the patient's body. One of the nurses will go with the body to the morgue. They also need to clean up the bed and room for the next patient.

4.2.7 Summary

The nurses of the palliative care ward of Port Kembla Hospital have the significant job of looking after patients with incurable diseases in the terminal stage of their lives. They show great patience, empathy, and care to the patients in the ward and their families.

In the Ward, the receptionist, the nurse unit manager and the resident doctor each has their own computer. However, apart from the nurse unit manager's computer, the others are seldom used. The nurses currently spend much time on paper-writing tasks, filling out different forms and notes. If suitable information technologies are utilised in the ward, there will be great potential to free nurses of much of this time-consuming paperwork. Thus they could have more time for dealing with the patients and their families.

4.3 Community Health

Community health plays a significant and important role in palliative care. One nurse mentioned that more than 60 per cent of the patients with a chronic terminal disease would prefer to stay at home. This would absolutely put more workload on nurses serving in the community. The applications of information technology would significantly improve the efficiency and effectiveness of the nurses' daily practice. Before determining what technology would be the most appropriate, one would first need to follow the basic approaches of analysis of the nurses' daily practice. The

workflow analysis of these procedures is the tool that will enable the researcher to understand the whole concept of the nurses' work practice.

When a patient is discharged from a hospital, he/she becomes a "client" of the community healthcare centre. The form-like referral containing a client's basic medical information is transferred or faxed from the hospital to the area community healthcare centre and is entered into the database at the central intake, with the referral number remaining the same as the one in the hospital. Then, the referral will be assigned to the appropriate regional community healthcare centre according to the client's address. This process is done mainly via email and fax. The receptionist of a regional healthcare centre receives the referral, gives it to the nurse at the centre, and makes an entry in a statistics book. These statistics will be counted and sent up to the nurse unit manager of the region for the purpose of accounting for the workload of each nurse in the community healthcare centre.

The first procedure that the nurse will undertake after she/he obtains the referral is to ring the client to confirm the visit.

4.3.1 First Visit

Before the actual visit, the nurse needs to contact the client by ringing his/her home to make an appointment for the visit. Figure 4.7 is the workflow diagram for the events that happen on the first visit.

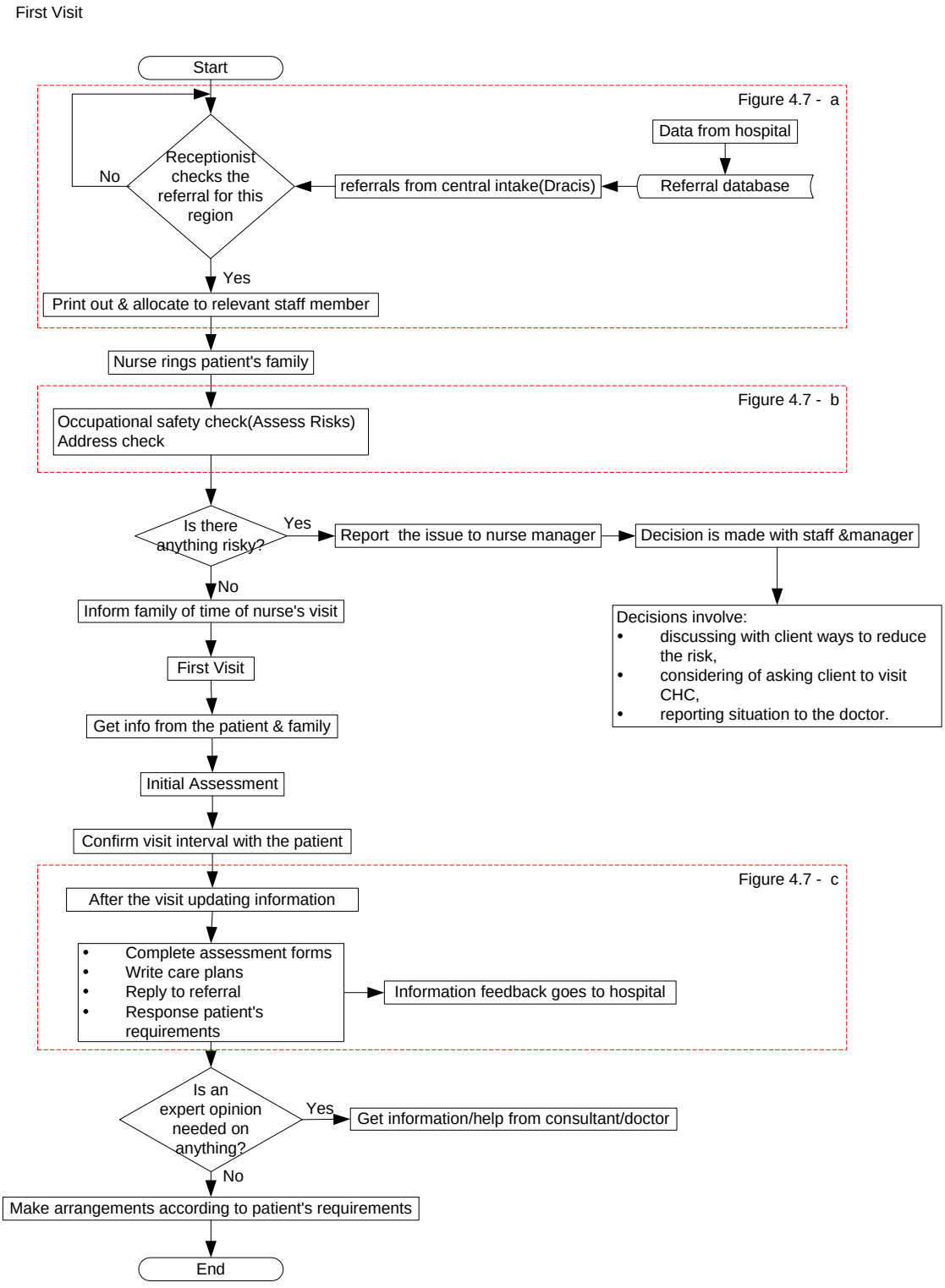

Figure 4.7 Nurses' Work Process in First Visit

4.3.1.1 Checking for Referrals (Figure 4.7 – a)

The referrals from Central Intake, which is also called DRACIS (Database Registration and Client Information System), are emailed or faxed to the local community healthcare centre. The receptionist at the centre checks the computer constantly. When a referral comes through, the receptionist downloads it and prints it out. Referrals are distributed amongst the registered nurse in the centre to keep workloads evenly spread. The receptionist also needs to enter statistical information regarding nurses' workloads into a special workload book.

4.3.1.2 Occupational Check (Figure 4.7 – b)

After obtaining the referral from the receptionist, the nurse, normally the registered nurse, immediately rings the client's family. While she/he is talking to the client or the family about the client's situation, the nurse will perform the Occupational Assessment (Occupational Check), and arrange the time for the nurse's first visit.

The Occupational Assessment is the major part of the phone call. It is also known as the "safety check" or the "risk assessment", which is used to protect nurses from risk at the client's home. The nurse needs to get information as to whether the client is a drug user, has dog(s) at home, or whether any of the client's family smoke at home.

If there is something considered risky, the nurse will report the issue to the nurse unit manager. Strategies will then need to be formulated to minimise the risks. This may involve discussing the issue with the client to find ways to control the risk, asking the

client to come to the community healthcare centre instead of a nurse making a home visit, or reporting the nurse's concerns to the client's doctor. Sometimes, if the risk is considered controllable, two nurses may visit the client together.

4.3.1.3 First Visit

During the first visit, the nurse talks to the client and his/her family member to gather information about the client. Simultaneously, the nurse conducts the initial assessment on the client. This is a complete health assessment, which is similar to the baseline check conducted in the palliative care ward. The assessment covers the medical history, both social and family, of the client; a physical check, including an assessment of the client's ability to cope in the home situation; and covers the client's symptoms, medications and allergies. The interval between subsequent visits will be determined based on the requirements and condition of the client.

During this first visit, the nurse will talk to the family members of the client, answer their questions, allay their concerns and give them guidelines on how to cope with the client's symptoms. Sometimes an interpreter may be required should the client be from a non-English-speaking background.

4.3.1.4 Update the Data (Figure 4.7 – c)

After the first visit, the nurse completes the assessment forms, updates the client's medical data, and writes the care plan. The nurse also needs to send a confirmation of taking over the client to the hospital via fax.

4.3.1.5 Other Activities

Occasionally, the nurse may need to consult other medical experts about the treatment of the client. The first person the nurse may contact would be a consultant attached to the community healthcare centre. The consultant would give instructions on the treatment, or he/she may contact another palliative care expert to seek an opinion.

Sometimes the nurse needs to arrange equipment or services for the client and his/her family. This assists in achieving one of their major goals, which is to help reduce the stress of the disease.

After the first visit, the nurse keeps on giving help and advice to the client and family in the follow-on visits.

4.3.2 Follow-on Visit

After a time interval which was determined at the first visit, the community healthcare centre nurse will revisit the client. This interval is decided upon by the nurse and the

client based on the condition and requirements of the client and the family members. The nurse gives advice, consultation and assistance to them, and monitors the condition of the client. The information is updated in the care plan on the client's referral. Figure 4.8 shows the workflow of the follow-on visit.

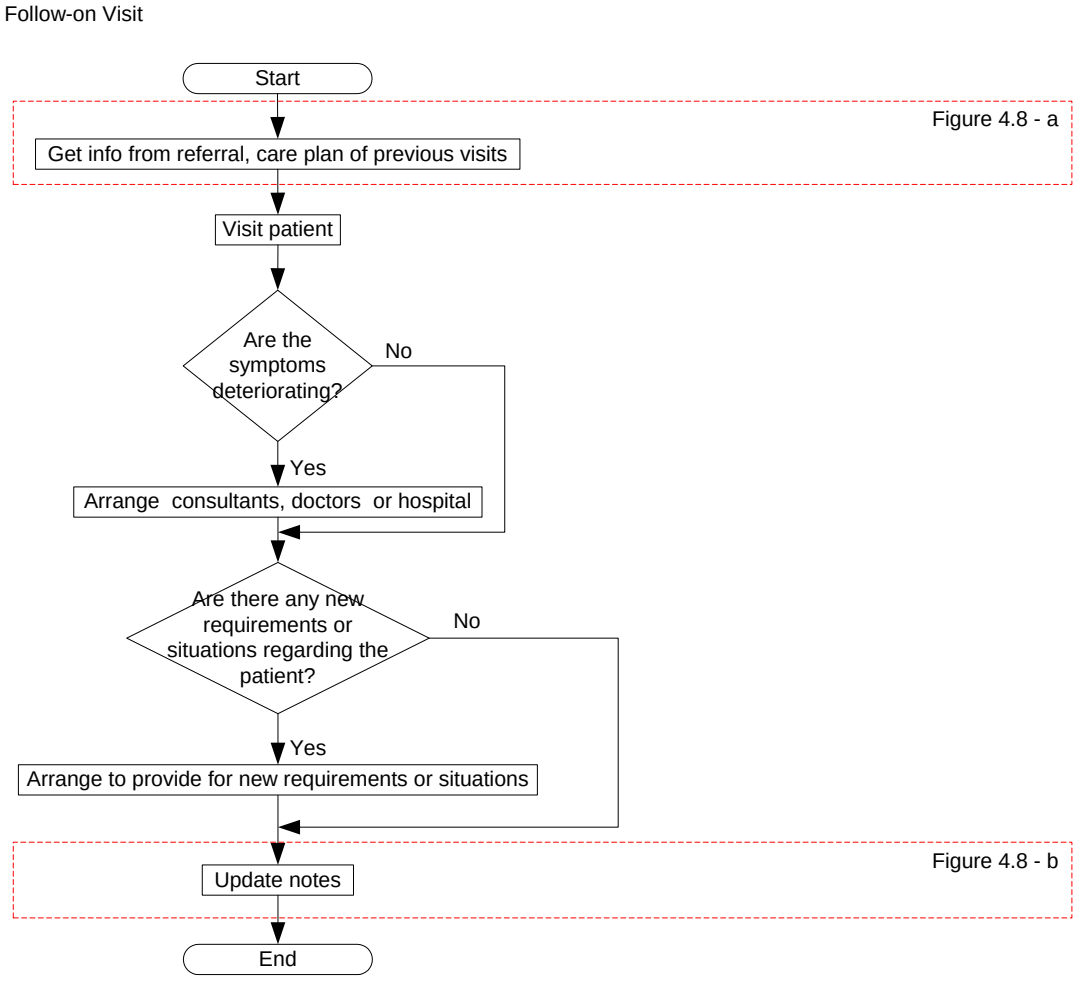

Figure 4.8 Follow-on Visit

4.3.2.1 Before Follow-on Visit (Figure 4.8 – a)

Before the follow-on visit(s) to the client, the nurse needs to get enough information about the client. A good check of the client's referral and care plan is essential. This gives the nurse some detailed information from the previous visits to the client.

4.3.2.2 Follow-on Visit the Client

During the visit, the nurse checks the client's condition, gives advice and consults with the client and his/her family. The nurse can get suggestions from consultants, palliative care doctors, and can even arrange for admission to the hospital ward if the client's condition is deteriorating.

Other services and equipment can also be arranged or ordered by the nurse according to requirements of the client and the client's family.

4.3.2.3 Update the Data (Figure 4.8 – b)

Updating the data is the last important task after the nurse's visit. All the new requirements, changes, medications and treatments have to be updated in the care plan of that client. This record facilitates the client's future treatment.

4.3.3 Summary

This research was conducted in the Illawarra region. The community healthcare centre acts an important provider of palliative care and plays a significant role in this area. If the community healthcare centre has insufficient patient information, then the nurses will need to make further visits to obtain more information. As it is similar with the nurses in the ward, the community nurses have to spend quite some time on paper-writing tasks. Adopting information technology could help the nurses with the management of the information flow between hospitals, patients and nurses.

4.4 Issues Identified through Investigations

During the investigative interviews and from observations in the ward and the community healthcare centre, three issues arose: the current database systems, nurses' mobility, and duplication of nurses' tasks.

4.4.1 Current Medical Database

The medical database is one of the most significant ICT applications in healthcare and is used to store patients' medical information. It is essential for medical providers to keep their clients' information.

Through interview and observation in both the palliative care ward at Port Kembla Hospital and the Illawarra Regional Community Healthcare Centre, the researcher found that the database used to store medical data is written in Microsoft Access.

4.4.1.1 The Information Captured in the Current Database

Table 5.1 (See Appendix 2) and Table 5.2 (See Appendix 2) show the database structure used in the ward and at the community healthcare centre. They reflect the information that should be captured in the two healthcare settings.

Table 5.1 Database Structure of the Ward

Referral

Client No		
Type of Referral:	MRN	Date of Death
		Place of Death
Date Referral	Area	M/F
Reviewed		Language Spoken
Last Name	Private institute	Fund
Address		First Name
Suburb		Tel Number
	DOB	Age
NOK Name		Relationship
NOK Address		NOK Tel Number
		Mobile Number
P/Carer		
GP		GP Tel Number
Referred by		Seen By
Specialist		Spec Tel Number
Diagnosis		
Social F/Work		
Code		Who’s On
Location		
Team Members		
Community A/H		
Medications		
Clinical Details Past History		

Table 5.2 Database Structure of Community Healthcare Centre

Patient Summary	Episode		No permission to contact GP	Specialist	
	Place Opening Date Closing Date Referral Source Referral to Days for this referral				
Registration Date			HACC Number		
Last Name			MRN		
First Name			Age at registration	Years	Months
Second Name			Gender		
Date of Birth			Country of Birth		
Street Address			Aboriginal/ Torres Strait Islander?		
Suburb			Language Spoken		
Area of Residence			Interpreter Needed?		
Phone			Medicare Number		
Name of Next of Kin			Does client have health insurance?		
NOK Relationship					
NOK Phone			Pension Benefit		
Family Structure			Does client have PHB card?		
Occupation					
Staff		Date	Location		
Assistance		Hours	Number		
Equipment					
Diagnosis	Relevant Information		Other Service	Start Date	
OH&S Risks			Service Requested		
Community Nursing			Specialty Type		
Notes	Allergies		Problems		
			Medical Problems	Non-medical Problems	

These two tables are designed to contain personal information about one patient, contact information of that patient's next of kin, and information on the doctor and specialist. However, the essential health information of a patient, such as medical history, medical records and forms, and medication charts, which contain important information about the health status of the patient, are not included. Therefore, the current database is not of much use to either in the ward or at the community healthcare centre. The nurse cannot find enough information about the patient that they are taking care of through consulting the database.

Several issues regarding the limitations of the database were also raised during interviews and through observations at both localities. There is a need of discussion of these issues.

4.4.1.2 Work Practice Might Be Improved

Several problems were identified during this analysis. Firstly, the current computing facilities in the palliative care ward are not suitable in terms of system configuration and design. There are three computers in the ward, all of them are connected via an intranet. One is used by the nurse unit manager, one by the resident doctor, and the third one is shared by the nurses and receptionist in the ward. The nurse unit manager regularly uses the computer for document processing and emails. The resident doctor uses the computer occasionally to check medication information and patients' information. However, the only computer the nurses can access is often used by the ward receptionist. The nurses in the ward barely use the computing facilities. One reason is because the nurses are usually on the move. Their main task is to look after patients, which requires

them to be at the bedside. Another reason is that the information required in Table 5.1 is entered by the secretary of the palliative care unit. The database is currently not designed for nurses to enter data. It contains the basic and general medical information of the patients. Sometimes the nurses may use the computer located on the front desk of the ward to access patients' medical information and admission letters from the doctor. All of the patients' information is stored in an Access database. The nurses need to record patients' medication information and changed condition on paper. However, the database currently used does not have the capability to capture this type of information.

Secondly, in the Community Healthcare Centre, the use of ICT is also limited. The discharge information of patients is captured onto a database using Microsoft Access. The discharge information of patients from hospital is entered by the Central Intake of the regional community healthcare centre. This information is distributed to local community healthcare centre via emails. At the local community healthcare centre, often it is only the receptionist that uses the computer facility. The receptionist prints out the information and hands this over to the nurses. The nurses generally have no chance to access the database, and need to record patients' information on paper. This information includes medical history, medication information, and assessment results. The nurses rarely enter the captured information into computer.

Finally, the ability and capacity of the current database are limited. Microsoft Access is utilised to build the structure of the medical database used in the ward and the community healthcare centre. This software is easy to use and is a part of Microsoft Office Suite. It has the basic functions of a database, such as tables, queries, forms and reports. However, the security of the Access database is not sufficient.

The medical information of patients in palliative care is mainly recorded on paper. It is not linked and is not interactive with the current database. Therefore, the shortcomings of the current database are a lack of security and an inability to capture medical data to facilitate medical decision making. Enhancing the functionality of the database is the first step towards improving the effectiveness and efficiency of information processing in both the ward and the community healthcare centre. Another important issue concerns the nurses' mobility.

4.4.2 Nurses' Mobility

The mobility of the nurses is significant regardless of which department they belong. As shown in the previous analysis of workflow of the nurses' daily practice, nurses are generally on the move. Nurses need to move around in the ward, distributing medications and washing patients as well as reassuring the patients and their families. These activities result in the nurses barely having time to sit down. However, as the information about the patients is stored on paper, the nurses have to find time to sit down and complete the paper work. The same problem occurs in the community healthcare centre. The nurses revealed that they normally spend two hours on average for a morning visit to one patient staying at home, and have to come back to the community healthcare centre in the afternoon to update the patient's notes. By installing suitable technology involving hand-held devices, the nurses could browse and enter patient information at the point-of-care. This would eliminate a significant proportion of their time and energy expended in moving around the ward and between outpatients and

the community healthcare centre. The outcome of this would be a benefit to both the nurses and their patients.

The last issue identified during the investigation is to try to reduce the duplication of the nurses' tasks.

4.4.3 Reduce the Duplication of Nurses' Tasks

The workflow diagrams show that during each shift in the ward the medication stock has to be checked (shown in Figure 4.1 – a, Figure 4.2 – a, Figure 4.2 – d, Figure 4.3 – a) and maintaining the medication stock in the ward is one of the significant tasks in every shift. However, this job is time consuming and stressful work for the nurses. They need to check several dozen medications and register ones that are running low. Where stock is low request forms need to be filled out. In community healthcare centres, the nurses also need to check the amount of medication which is left in the patients' homes and ensure that this meets the doctors' requirements. This repeated stock checking task erodes the efficiency of the nurses' work. Applications of ICT have the potential to facilitate and simplify the routine work of the nurses.

4.4 Chapter Summary

After the determination of the methodology adopted in this project, the researcher conducted a series of interviews and observations in both the palliative care ward and the community healthcare centre. As the result of these interviews and observations, the

workflow diagrams of the nurses' daily practice for both the ward and the community healthcare centre are showcased. Every major process shown on the diagrams is detailed and described in this chapter. The researcher concludes, based on this raw information, that the information flow around the nurses of either the ward or the community healthcare centre is not very streamlined. There are many obstacles reducing the nurses' efficiency and effectiveness in terms of dealing with the information. In the next chapter, the researcher will address the problems raised by the nurses during interviews, and from personal observations and outline solutions that he considers will improve the situation.

Chapter 5: Discussions and Recommendations

5.1 Introduction

In the previous chapter, the workflow of the nurses' work practice in both the palliative care ward and the community healthcare centre was described based on the results of the interviews and observations. In this chapter the researcher will analyse the opportunities to use technology applications to improve the nurses' work efficiency and suggest off-the-shelf technologies that can be readily applied to palliative care. Although there are well-developed technologies, they need to be customised to fit the needs of the palliative care ward and the community healthcare centre.

5.2 Nurses' Work Process That Has Potential to Be Improved

The purpose of this research project is to use the method of workflow analysis to understand the work process of the nurses in the palliative care ward and the community healthcare centre. Hence, the result of this research has potential to improve the nurses' work efficiency to provide better service to the patients and to ease the shortage of nurses in healthcare. The knowledge is essential for identifying opportunities for

applications of ICT to help improve information management mechanism, nurses' work efficiency and care service delivery for patients.

The workflow diagrams in the previous chapter show the procedures of the nurses' daily practice in both the palliative care ward and the community healthcare centre. They give the researcher the concept of where the ICT applications could be employed. Analysing these diagrams enable the researcher to locate the inefficient and time-consuming work processes.

5.2.1 Medication Related Processes

Figure 4.1-a is the medication stock check that the nurses conduct daily in every shift in the palliative care ward. This procedure is similar to the task described in Figure 4.1-f, Figure 4.2-a, Figure 4.2-d and Figure 4.3-a. As previously described in Section 4.2.1.2, the stock checking, maintaining the stock of all medication used in the ward is one of the most significant procedures. However, having to sort every medication each time is a massive workload for the nurses. This process is conducted by the nurses physically with fairly large amount of paper work. This repetitive task could be simplified by using ICT applications.

Figure 4.1-c is the task that is often called the "morphine round" and involves distributing the pain relief medication to the patients. The nurses in the ward conduct this task to relieve the pain symptom of the patients. A similar procedure is represented in Figure 4.2-c, Figure 4.3-e and Figure 4.5-a. This task involves checking patients'

medical records, medication stock and restricted medicine registration book. It is not efficiently conducted at current condition.

Figure 4.2-f, Figure 4.3-c and Figure 4.5-b represent the task of distributing the extra medication in the ward. They are of similar inefficiency as the tasks in Figure 4.2-c, Figure 4.3-e and Figure 4.5-a.

5.2.2 Medical Records Related Processes

Figure 4.1-b and Figure 4.2-b describe the processes that the nurses follow to check the patients' beds. This work is only conducted by the ward nurses during morning shifts and afternoon shifts. Night shift nurses do not need to conduct this task, as the patients are normally asleep when the night shifts start. This is a task that is repeated, as described in Sections 4.2.1.3 and 4.2.2.3. The nurses in morning shifts and afternoon shifts follow exactly the same procedure. To conduct this task, the nurses have to carry paper medical records of the patients and walk around the whole ward. It is a time-consuming work. The workload for this task is enormous. ICT applications could simplify this task and reduce the time the nurses spend on it.

Figure 4.1-d shows the procedure involved in preparing the documents relating to patients who have their medical check outside the ward. The nurses have to search and check the patient's medical records, and prepare them with the patient.

Updating the medical notes for a patient is a significant nursing task in both the ward and the community healthcare centre. Figure 4.1-e, Figure 4.2-g, Figure 4.3-d, Figure

4.4-e, and Figure 4.5-c show that five out of six of the nurses' main activities in the ward contain this component. Figure 4.7-c and Figure 4.8-b indicate that the nurses in the community healthcare centre also conduct this task daily. As described in the relevant sections, updating the nursing notes is one of the most time-consuming paper-based nursing documentation practices. ICT applications have the potential to help the nurses reduce time spent on this paperwork and increase time spent on direct patient care.

During the afternoon shift in the ward, the nurses may need to obtain medical readings for some patients, particularly the blood sugar levels of diabetic patients, (see Figure 4.2-e). This requires extra workload to the nurses with paper works to be done. ICT applications could improve the efficiency of this task.

With the help of ICT applications, the task shown in Figure 4.3-b, checking medication charts, could be eliminated. As the information of the patients is stored in the medical and medication database, it would be unnecessary for the nurses in night shifts to physically add pages to the patients' medical documents folders. This would give the nurses of the night shift in the ward more time to look after their patients.

The tasks shown in Figure 4.4-a to Figure 4.4-d are related to exchanging the patients' information with the medical records of the hospital on Admission. Information is accessed from the medical records on Admission and new patient information is uploaded to the medical records. These tasks require the nurses to search, check and update the information on the patient's medical records. It is a time-consuming and inefficient work to the nurses.

ICT applications could reduce the workload and simplify the procedure of nurses and the resident doctor in preparing the documents relating to deceased patients, as described in Figure 4.6-a. The Internal Notification of Death document (See Appendix 3) is completed by nurses, the Death Certificate and Cremation Certificate are only completed by the resident doctor. By building electronic form-based template for the Internal Notification of Death form, as the contents of the document are uniform, nurses could fill out the patients' information (on the computer) and print out the completed document for each particular instance.

Figure 4.7-a shows the process involving the flow of information that occurs when a patient discharged from the hospital makes a visit to the community healthcare centre. However, the discharge information of the patients is relatively simple. This is an all paper work involved task under current condition. The nurses have to transfer all the information on paper and take them while travelling between nursing homes and patients' families. Similarly the tasks performed on the follow-up visit (Figure 4.8-a) could also be facilitated with the use of these technologies.

To complete the Occupational Safety Check (Figure 4.7-b), the nurses need to come back to the office. This task would reduce the time that the nurses could spend at the patients' homes. ICT applications could improve this inefficient work to efficient one and increase the time of the nurses with their patients.

5.3 Recommendations for The Usage of ICT to Improve The Inefficient Work Processes

Although previous discussion gives the conceptions of the points of the nurses' work practice to fit the suitable ICT applications, it is important to describe the detailed usage of those application in this section.

5.3.1 The Recommended Mechanism for Improving Information Management

To improve the quality of data and effectiveness of patients' information processing, the researcher considers that the current database should be upgraded. To obtain the ideal database upgrade, the researcher recommends that several aspects should be considered.

Firstly, the contents of the database should be enriched. Besides the contents of the current databases, new data fields have to be built into the database. The following information needs to be include for the palliative care ward: Pending Admission form, Allergy Label form, Bowel Chart, Alpha Excel Correct Functioning Check List (Mattress Check list), Pressure Ulcer Management form, Care Plan, Syringe Driver Chart, Progress Notes, Fixed Interval Variable Dose Chart (Morphine), and Medication Chart (See Appendix 3). For the community healthcare centre, the information that needs to be incorporated into the database includes Initial Risk Assessment form, Community Nursing Assessment form, Pressure Ulcer Management form, Activity of

Daily Living form, Care Plan, Syringe Driver Record, Medication Administration Record and Progress Notes (See Appendix 3). The new medical database should include the medication database and normal medical records database.

These forms and charts could be designed in small database programs, which could generate electronic forms. Every electronic form could combine blank fields, multi-choices and tick boxes for entering the information. These programs could be installed into mobile devices, such as PDAs, which the nurses could take to record data at the point-of-care.

Secondly, upgrading the current database using advanced and sophisticated database design could improve interactivity and search speed between the medical forms and records. With the advanced features of the latest database technology, the patients' information could be automatically updated to the relevant medical forms and records when the nurses enter the data. This would liberate the nurses from tedious searching for the relevant paper forms and charts to fill out. The speed of retrieving a patient's relevant medical information could also be improved with the strong search feature used in advanced database technology. Thus, the work efficiency of the nurses could be improved.

Finally, the security of the patients' information could be improved by adopting this advanced database technology. The advanced database applications can provide access control for different levels of users. This prevents the patients' information from leaking to an unauthorised third party. However, employing upgraded database technology for the medical and medication databases would not, on its own, provide an optimal

outcome; other applications need to be integrated to suit the mobile work practice of nurses.

5.3.2 The Recommended Mechanism for Improving Efficiency Via The Integration of Personal Digital Assistants into Nursing Work Process

A palliative care nurse's work involves much moving around as they care for the patients and PDA technology would suit the nature of their work. Personal Digital Assistants (PDAs) are small hand-held computers that can provide nurses and doctors with the ability to access adequate and current information, thereby improving patient care (Davenport 2003). Fischer (Fischer et al 2003:144) suggested that medication databases are ideally suited for formatting onto a PDA. PDAs can communicate with the medical database via wireless technology or the infrared ports between PDAs and desktop computers. The nurses can use PDAs to download the patients' information, check the doctors' instructions, enter the patients' data, and update the medical database. Figure 5.1 shows how the nurses could use PDAs to communicate with the medical database.

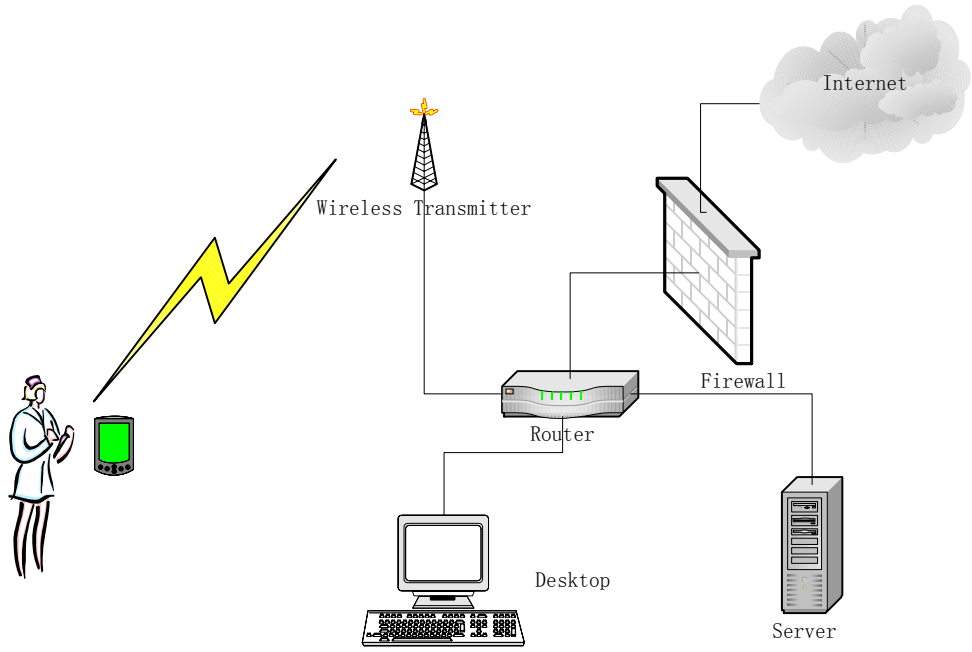

Figure 5.1 Nurses using PDAs to communicate with the medical database

The server, the router, the firewall, the wireless transmitter and one or more desktop computers combine the local intranet in Figure 5.1. The medical database could be stored in the server and could be shared by the desktop computers and PDAs in this local network. The firewall could be used to protect the local intranet from unauthorised access from the Internet. Nurses in different occupational levels have different needs regarding access to the medical database. PDAs used by nurses would also need to have password protection. The wireless transmitter in this system supports IEEE 802 series wireless communicating protocols. The router would provide connections to the devices in this local network. PDAs would exchange data using IEEE 802 series protocols or synchronise with the desktop computers via the infrared ports. The nurses could download the information of relevant patients from the medical database, and take the PDAs with them while they are conducting their daily practice. The patients' data could be entered at the bedside or the point-of-care by the nurses. Then, the nurses could

upload the data to the medical database. This makes point-of-care technology, which can provide accessing information at the bedside, more efficient (Rothschild et al 2002:223).

5.3.3 The Recommended Mechanism for Improving Effectiveness and Saving time Via Integration of Scanner and Barcode System

As previously stated, the stock checking in the ward is one of the most important tasks the nurses do in their daily practice. The adaptation to PDA use of commercial applications of technology, such as bar coding, continues in healthcare at a rapid pace (Noble 2000:28). Bergeron (1998 c) recommended that a pen scanner with OCR software could be readily put into a nurses' pocket, and text beamed directly to a PDA and then to a PC or Mac through the usual PDA's syncing process. Applying ICT applications could help the nurses reduce the stress of this time-consuming work and improve their efficiency. Figure 5.2 shows how scanner and barcode technology could be integrated into the system.

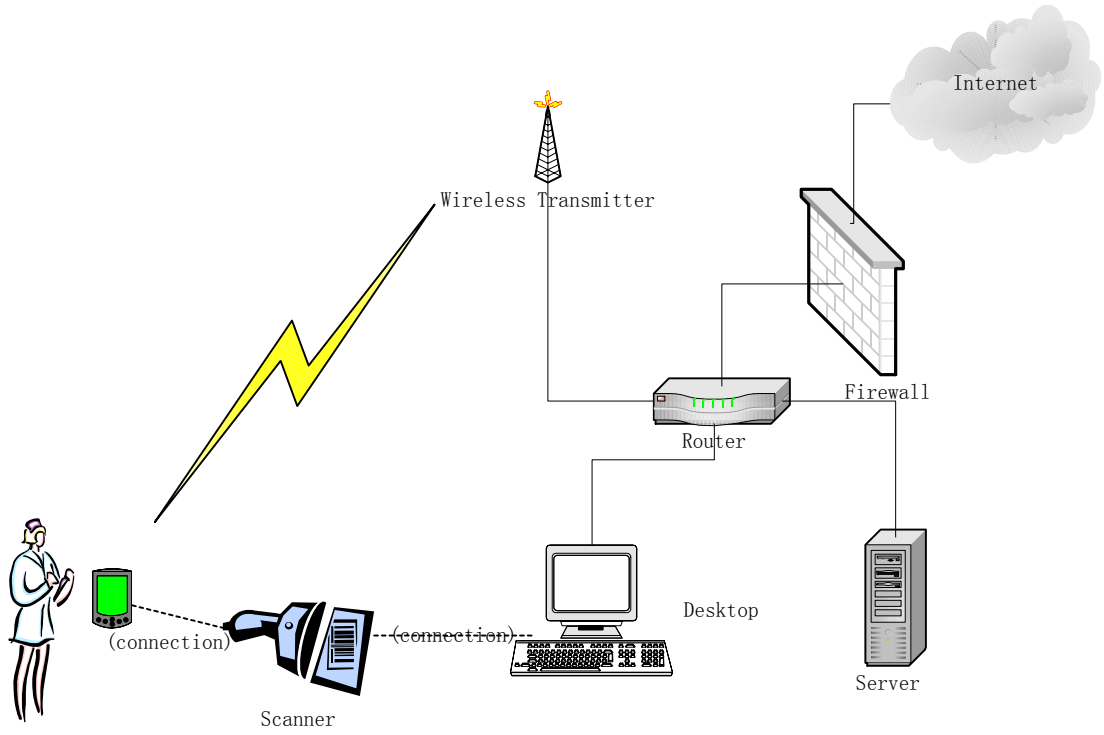

Figure 5.2 The use of scanner and barcode system in the ward

The specifications and the functionality of the systems shown in Figure 5.1 and Figure 5.2 are similar. The scanner and barcode system would need to be developed in order to eliminate some of the duplicated tasks that the nurses conduct in the ward. The names and kinds of the medication used in the ward could be entered in the medication database. The scanner could connect to either the desktop computers or the PDAs that the nurses use. While the nurses are checking the stock, they could scan the barcodes of the medication and enter the quantity. A notification could be generated by the database system to inform the pharmacist that a medication is out of stock. Alternatively, the pharmacist could monitor the use of medication in the ward by consulting the database.

These recommendations are based on the analysis of the nurses' daily practice in both the ward and the community healthcare centre. They have the potential to improve the efficiency and effectiveness of the nurses' work.

5.4 Chapter Summary

By analysing the nurses' workflow, clarified in the workflow diagrams in Chapter 4, situations where ICT could be applied to improve work practice can be identified. These analyses showcase the feasibility of utilising ICT for the benefit of nurses, and would lead to improved efficiency, reduced workloads and less work-related stress. The emergence of new business models and their social impacts are just two of the areas where significant change might occur (Holt & Gillies 2002). The recommendations given in this chapter provide a blueprint for improving the database and for adopting ICT applications incorporating PDAs, wireless technology and a scanner and barcode system into palliative care.

Chapter 6: Conclusion

The importance of palliative care, as a significant part of healthcare, has drawn many researchers attention to improve its efficiency and effectiveness. It is identified by Kristjanson (2001) that there is a need for solutions based on information technology to enable palliative care practitioners to manage the increasing amounts of information and to use it efficiently. The aim of this research was to analyse the work processes of nurses in palliative care wards and community healthcare centres in order to identify any need for the integration of information and communication technology to improve their work efficiency.

Workflow of nurses' work practice in the palliative care ward and community healthcare centre were conceptualised and presented in workflow diagrams. These diagrams reflect the major processes of the nurses' work practice in different work processes of various scenarios. The research method is interview and observation. Three major issues were discovered. Firstly, some of the procedures that the nurses execute everyday are time-consuming, routine and repetitive. Secondly, the database that the nurses currently use remains simple, lacks functionality that is relevant to the work needs of the nurses, and lacks security protection of patient information. Finally, the nurses spend most of their shifts on the move caring for the patients. There is a need for instant access to information at the point of care - specifically patient treatment, medication information, and medical record information. However, current ICT solutions available to them cannot satisfy their needs. This could be rectified by the

application of mobile devices and wireless technology to enable them to access various data.

The researcher found out some off-the-shelf ICT applications that could be utilised in palliative care. With the help of these off-the-shelf ICT applications, the efficiency of nurses conducting work tasks might be improved. Employing the appropriate ICT applications could also minimise the time spent conducting those time-consuming tasks and reduce the stress involved in performing these routine tasks. As analysed in chapter 5, these recommended ICT applications include PDAs, wireless technology, scanners and a revised database. The researcher analysed the integration of these ICT applications to bring maximum efficiency to nurses both in the ward and in the healthcare centre. A suggestion was given to upgrade the current medical database program to a more sophisticated and advanced database system with better functionality and security protection.

The three objectives stated in Chapter 1 have been achieved in this thesis. Although this research has fully satisfied the purpose of the project, there are still some limitations. Firstly, the recommendations remain prototypes. These prototypes need to be implemented, evaluated and justified in the real work situation. This requires experiments and trials to prove the effectiveness of these solutions. Secondly, the scope of this research is relatively small, with the location confined only to the Illawarra region. This impacts the generality of the analysis and recommendations of this research.

Future research might focus on the implementation of the recommended solutions. Based on these trials, the solutions could be refined to suit the usage in palliative care.

The scope of this research needs to be expanded to include more organisations, palliative care units in hospitals and community healthcare centres, in order to establish a generic ICT solution for enabling nurses to work more efficiently and effectively in palliative care. Another significant aspect of future research would be to undertake a cost-benefit analysis of the implementation of the recommended ICT applications. This would be another benefit of applying ICT into healthcare, besides improving efficiency.

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Appendix 1

Illawarra Area Health Service

Address all correspondence:
Chief Executive Officer
Private Mail Bag 3
Port Kembla N.S.W. 2505

Telephone (02) 4275 5111
Ex(02) 4253 4800
YOUR REF:
OUR REF: HE03/176

14 November 2003

Ms S Ma
E-health Lab,
SITACS
PO Box U165
UNIVERSITY OF WOLLONGONG 2522

Dear Mr Ma

ETHICS NO: **HE03/176**

TITLE: **"Palliative Care Workflow Analysis"**

The Area has received notification of ethics approval for the above named study from the Joint Human Research Ethics Committee of the University of Wollongong and Illawarra Area Health Service.

I am happy to advise the approval of the Area Health Service for the above named study that involves clients of the IAHS, IAHS staff or staff affiliated with the IAHS to commence.

Please remember that your research should be conducted in accordance with the NHMRC National Statement on Ethical Conduct in Research on Humans (http://www.nhmrc.gov.au/issues/researchethics.htm) and the NSW Health Information Privacy Code of Practice (http://internal.health.nsw.gov.au/iasd/information-privacy).

Best wishes for the conduct of the study.

Yours sincerely

Dr L Gale

Liz Gale
Chief Executive Officer

cc Dr Frances Phillips, Ethics Officer, University of Wollongong
Professor Anthony Hodgson, Joint Director of Health Research, IAHS/UOW
Ms Jan Erven, Acting Director, IAHS Rehabilitation, Aged Care and Geriatric Services

FINAL APPROVAL – IAHS AUTHORISATION
In reply please quote: RN:FAP HE03/176
Further Enquiries: Frances Phillips (PH: 42214457)

6 November 2003

Mr S Ma
PO Box U165
Wollongong University
Wollongong NSW 2500

Dear Mr Ma,

I am pleased to advise that Human Research Ethics Committee has given **finally approval** to the application listed below. **Before you can proceed with the project you must first have authorisation from the IAHS. A copy of this advice has been forwarded to the IAHS.**

As a condition of approval, the Human Research Ethics Committee requires that researchers immediately report anything which might warrant review of ethical approval of the protocol, including: serious or unexpected adverse effects on participants, proposed changes to the protocol, unforseen events that might affect continued ethical acceptability of the project. You are also asked to submit a final report when the project is completed or if the project is not commenced.

NOTE: This approval is conditional on agreement to the conditions outlined below.

Ethics Number:	HE 03/176
Project Title:	Palliative Care Workflow Analysis
Name of Researchers:	Mr S Ma, Dr Ping Yu, Dr Carole Alcock
Final Approval Date:	6 November 2003
Date for Renewal:	5 November 2004

This certificate relates to the research protocol submitted in your original application and includes all approved amendments to date.

Please note that research projects of long duration must be reviewed annually by the Committee and it will be necessary for you to apply for renewal of this application if this project is to continue beyond one year.

Yours Sincerely,

Assoc. Prof. Rod Nillsen
Chairperson
Human Research Ethics Committee
cc. Supervisor: Dr Ping Yu
Prof. Anthony Hodgson, IAHS Research Directorate

Office of Research University of Wollongong NSW 2522 Australia
Telephone: +61 2 4221 3386 **Facsimile:** +61 2 4221 4338
office_research@uow.edu.au www.uow.edu.au

6 November 2003

Mr S Ma
PO Box U165
Wollongong University
Wollongong NSW 2500

Mr Ma,

Approval for application HE03/176, "Palliative Care Workflow Analysis", is conditional on agreement to the following conditions

1. Approval is given for Port Kembla Hospital only. A request for an amendment should be submitted to the HREC if the researcher wishes to expand the research to other sites.
2. The nurse should inform the patient that they are being asked to indirectly participate in research into palliative care processes. The researcher should ask the nurse to carefully explain to the patient that there is no obligation on the patient being involved and that they are free to say no. It should also be explained that the patient can say no at any time during the observation. It is suggested this is done in advance so the patient or the patient's family has time to consider the idea. The nurse should explain that the research is to do with processes and procedures and the patient is only indirectly involved.
3. The researcher should ask the nurse to be aware of any signs of discomfort or distress the patient may experience due to the research, and ascertain if the patient wants the researcher to leave. The researcher will leave ~~as seen~~ on the patient's or the nurse's request.
4. To limit the number of observations involving patients, the researcher agrees to observe each individual procedure on a maximum of 3 occasions with each nurse. The researcher will be observing 3 to 4 nurses.

Dr Frances Phillips
Ethics Officer
Human Research Ethics Committee

Mr S. Ma
Information Technology and Computer Science

Office of Research University of Wollongong NSW 2522 Australia
Telephone: +61 2 4221 3386 **Facsimile:** +61 2 4221 4338
office_research@uow.edu.au www.uow.edu.au

TO BE READ IN CONJUNCTION WITH THE UNIVERSITY OF WOLLONGONG/ILLAWARRA AREA HEALTH SERVICE HUMAN RESEARCH ETHICS APPLICATION GUIDELINES

Consent Form

Palliative Care Workflow Analysis

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I understand that, if I consent to participate in this project I will be asked to be interviewed or participate in discussions about nursing work practice for up to one and a half hour for each interview, within 25 times a year.

I have been advised of the potential risks and burdens associated with this research and have had an opportunity to ask Mr. Shaohui Ma any questions that I may have about the research and my participation.

I understand that my participation in this research is voluntary, I am free to refuse to participate and I am free to withdraw from the research or withdraw my data at any time. My refusal to participate or withdrawal of consent will not affect my relationship with my employer or my relationship with the University of Wollongong.

If I have any enquiries about the research, I can contact Mr. Shaohui Ma, Tel: 02 42215416, Dr Ping Yu, Tel: 02 42215412, or Dr. Carole Alcock, Tel: 02 42213884, School of Information Technology and Computer Science, Faculty of Informatics, University of Wollongong. If I have any concerns or complaints regarding the way the research is or has been conducted, I can contact the Complaints Officer, Human Research Ethics Committee, University of Wollongong on 42214457.

By signing below I am indicating my consent to participate in the research entitled Palliative Care Workflow Analysis, conducted by Mr. Ma, Dr. Yu and Dr. Alcock as it has been described to me in the information sheet and in discussion with them. I understand that the confidential data collected from my participation will be used to develop an effective information system and I consent for it to be used in that manner.

Signed .....

Date 17/12/03

Name (please print)
S. RAWSON

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Signed ..... Date 18/12/03

Name (please print) ..... Fabianczyk

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Signed ..... Date .....

Eileen Pirie 5.5.04.

Name (please print)

EILEEN PIRIE

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Signed ..... Date .....

A Rankin 5/5/09

Name (please print)

Angela Rankin

TO BE READ IN CONJUNCTION WITH THE UNIVERSITY OF WOLLONGONG/ILLAWARRA AREA HEALTH SERVICE HUMAN RESEARCH ETHICS APPLICATION GUIDELINES

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Signed ..... Date .....

J. Ramage 6.5.04

Name (please print) .....

J Ramage

Appendix 2

REFERRAL

ENT NO	1		
TYPE OF REFERRAL	Nursing	MRN	23-06-03
DATE OF DEATH	23/01/1999		
PLACE OF DEATH	Nursing Home		
DATE REFERRAL:		AREA	North
M/F	M		
REVIEWED		LANGUAGE SPOKEN	English
PRIV.INS:	No	Fund	
LAST NAME	[redacted]	FIRST NAME:	[redacted]
ADDRESS	Towradgi Park Nursing Home	TEL NO:	4285 8098
Suburb:	TOWRADGI 2518	DOB	1 /03/1930 AGE 74
NOK NAME	Robyn Shead	R/SHIP:	Daughter
NOK ADDRESS		NOK TEL NO:	(42) 84 15 88
CARER		MOBILE NO:	
GP	Dr. P. Pead 58 Kembla Street, WOLLONGONG. 2500	GP TEL NO	4229 2499
REFERRED BY:	DR. P. CLINGAN	SEEN BY:	DR/SR. G BARCLAY
SPECIALIST	Dr. P. Clingan 410 Crown Street, WOLLONGONG. 2500	SPEC TEL NO:	(02) 4227 3733
DIAGNOSIS:	Ca liver		
SOCIAL F/WORK			
CODE		WHOSE ON	
LOCATION:			
TEAM MEMBERS:			
COMMUNITY A/H	Sr. L. Campbell, Palliative Care After-Hours		
MEDICATIONS:			
CLINICAL DETAILS PAST HISTORY:			

ient summary

episode 7
Warilla CHC
opening date 21/01/2004
closing date
referral source: Palliative care facility/hospic
referred to:
days for this referral

no permission to contact GP
Dr Goolam Ajam
3 Bayview Centre
Warrawong 2502
phone 4276 2199
fax 4276 1416

Specialist
Dr Frank Formby
Cancer Care
PKDH
phone 0408843661

registration date	21/11/2001
last name	[redacted]
first name	[redacted]
second name	
date of birth	30/12/1929
street address	11 Rottnest Close
suburb	Shellcove 2529
area of residence	New South Wales
phone	(02) 4295 5517
ame of next of kin	Margaret Rose
NOK relationship	WIFE
NOK phone	42955517
family structure	Lives with Family
occcupation	Pensioner

HACC number	eneoy301219291
Medical Record Number	[redacted]
age at registration	years 74 mos 1
gender	Male
country of birth	Australia
Aboriginal/Torres Strait Islander?	Neither Aboriginal or Tor
language spoken at home	English
interpreter needed?	No
Medicare No	
does client have health insurance?	No
Pension Benefit	Aged Pension
does client have PHB card?	No

f	date	location	assistance	hours	number	equipment
	1/01/2004					

gnosis	relevant information
astatic anoma R/ leg	7/1/04 admitted to Pall Care with nausea and vomiting , constipation - AxR / releaved by regular apperients and enema management - symptoms now settled H/O pain R/ leg - relieved with increase in Fentenyl patch due for follow up at Melanoma Clinic RPA ** may need ACAT to support Ray as wife is dependant on him *** link in with AHPC
H&S risks	

other services
nil

start date
22/01/2004

services requested
Assessment / support commence Thursday

Community Nursing speciality type

tes

allergies:
pravachol

problems

Medical Problems	Nonmedical Problems
4 65.	4. 04

ferrer Sr Hapgood
2238122
Harris 12.15pm

clinical stream

Appendix 3

ILLAWARRA AREA HEALTH SERVICE

HOSPITAL: _____ WARD: _____

NOTE: ALL ICU/SPECIAL CARE UNIT DEATHS MUST HAVE A MANDATORY AUTOPSY

NAME: _____

ADDRESS: _____

AGE: _____ SEX: _____ RELIGION: _____

DATE: _____ TIME OF DEATH: _____

CERTIFIED BY: _____

CORONERS CASE: _____ D.O.A. _____

RELATIVES PRESENT: _____ OR NOTIFIED: _____

V.M.O. NOTIFIED: _____ G.P. NOTIFIED: _____

CLERGY NOTIFIED: _____ POLICE NOTIFIED: _____
(if applicable)

RINGS (Description): _____

(Tick as applicable) LEFT ON BODY: _____ REMOVED: _____

VALUABLES: _____

_____

TIME BODY REMOVED TO MORTUARY: _____

BY (Include description): _____

COMMENTS: _____

_____

IDENTIFICATION OF DECEASED :

Hospital Identification Bands in place : YES: ☐ NO: ☐

Identification Tag to shroud and / or bag in place: YES: ☐ NO: ☐

VERIFIED BY (Include designation): _____

_____

INTERNAL NOTIFICATION OF DEATH

M 380

Illawarra Health
Better Services, Better Health

MRN	
Surname	
Names	
Address	
DOB / Sex	

HOME VISIT RISK ASSESSMENT

Initial Risk Assessment-*complete prior to assessments*			Ongoing Review		
Hazard	**Risk Factors/Assessment**	**Controls/Strategies**	**Changes/Incidents**	**Date**	**Signature**
Risk of violent activity or aggressive behaviour by client	Is there any information from the referral source to indicate aggressive behaviour? No ☐ Yes ☐ → Has a safety alert sticker been attached to Patient File? No ☐ Yes ☐ →	If Yes, complete "Potential for Aggression Risk Assessment" with Manager.			
Risk of violent activity or aggressive behaviour by other people present during the visit.	Will other people be present during the visit? No ☐ Yes ☐ ↓ Is there any known history or possibility of aggression by this person/s? No ☐ Yes ☐ →	If Yes, complete "Potential for Aggression Risk Assessment" with Manager.			
Client access No ☐ Yes ☐ →	Is house number clear? Yes ☐ No ☐ → Nearest cross street or Landmark..... Is lighting adequate for after hours? Yes ☐ No ☐ → Is car parking problematic? No ☐ Yes ☐ → Are pathways or entrances an issue, i.e. steep slippery or obstructed? No ☐ Yes ☐ → Will remoteness, roads or inclement weather create an issue? No ☐ Yes ☐ → Is there mobile phone coverage in the area? Yes ☐ No ☐ →				

Initial Assessment			Ongoing Review		
Risk	Assessment	Controls/Strategies	Changes/Incidents	Date	Signature
Does the client or anyone who will be present at the home smoke No ☐ Yes ☐ →	Have you an agreement that the client/family refrain from smoking during the visit? Yes ☐ No ☐ →				
Is there any risk of danger from pets or animals on premises? No ☐ Yes ☐ →	Have you an agreement that animals be removed or restrained for the duration of the visit. Yes ☐ No ☐ →				
Are you aware of any other issues that might put you or any employee at risk? No ☐ Yes ☐ →					
Is there any risk of injury identified that may be a manual handling issue? No ☐ Yes ☐ →	Complete Manual Handling Activities Checklist and summarise key issues here.				

Signature/ Designation:

_____

Date: _____

Illawarra Health
Better Services, Better Health

Community Health

MRN			
Surname			
Given Names			
DOB		Sex	

Disclaimer: This tool is only a guide and does not replace clinical judgement

Presenting Problem: _____

_____

_____

Medical History

Stroke _____

Blood clot legs/lungs (circle) _____

Cardiac disease _____

High Blood Pressure _____

Asthma/bronchitis/emphysema _____

Pneumonia _____

Anaemia _____

Bleeding Disorders _____

Rheumatoid arthritis _____

Arthritis _____

Hepatitis: type _____

Stomach ulcer _____

Diverticulitis _____

Cancer: location _____

Diabetes: type _____

Auto Immune Disorders _____

Kidney disease _____

Thyroid problems _____

Parkinson's disease _____

Multiple Sclerosis _____

Dementia _____

Spinal injury _____

Mental Illness _____

Other Medical condition _____

_____

_____

_____

Surgical History

_____

_____

_____

_____

_____

_____

Medications

_____

_____

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_____

_____

_____

Medication Administration Details

Self Carer

Dosette Blister Pack

Other _____

_____

_____

Allergies / Adverse Reactions

_____

_____

_____

_____

Insert Allergy Alert Sticker here

Community Nursing Assessment

Adapted from Department of Veterans' Affairs Generic Assessment Form

MENTAL STATE

☐ Alert ☐ Vague ☐ Confused
☐ Semi-conscious ☐ Other _____

PSYCHOSOCIAL

Behaviour:

☐ Appropriate ☐ Cooperative ☐ Anxious
☐ Restless ☐ Withdrawn ☐ Hostile
☐ Angry ☐ Depressed
☐ Other _____

Smokes: ☐ No ☐ Yes How many/day _____

Alcohol: ☐ No ☐ Yes Average drinks/day _____

MOUTH CONDITION

☐ Normal ☐ Dry ☐ Gingivitis
☐ Ulcerated ☐ Other _____

EYES

☐ Glasses ☐ Glaucoma ☐ Jaundice
☐ Contacts ☐ Blurred Vision ☐ Legally Blind
☐ Other _____
☐ No problem

EARS

☐ Deaf: R / L ☐ Hearing aid: R / L
☐ Other _____
☐ No problem

SKIN INTEGRITY

Turgor:

☐ Normal ☐ Tight ☐ Loose ☐ Oedema

Colour:

☐ Normal ☐ Jaundiced ☐ Ruddy ☐ Pale
☐ Other _____

Wounds ☐ Yes ☐ No
If yes, complete:
IAHS Wound Assessment Chart

Does the client reposition self & move all extremities independently? ☐ Yes ☐ No
If no, complete:
IAHS Pressure Ulcer Risk Assessment Chart.

GENITOURINARY

Urine:

☐ Incontinence ☐ Retention ☐ Nocturia
☐ Frequency ☐ Urgency ☐ Hesitancy
☐ Haematuria ☐ Other _____
rostomy: ☐ Yes ☐ No
oley catherter: ☐ Yes ☐ No
ze fg _____ Baloon __cc Type _____
mments _____

☐ No Problem

RESPIRATORY

Shortness of Breath:

At rest ☐ Yes ☐ No
On exertion ☐ Yes ☐ No
☐ Sleeps with how many pillows _____
Cough: ☐ Yes ☐ No
☐ Productive ☐ Unproductive

Oxygen Use: _____
☐ No problem

NUTRITION and ELIMINATION

☐ Normal Diet ☐ Special diet _____
Appetite: ☐ Good ☐ Fair ☐ Poor
Dysphagia: ☐ No ☐ Yes
Weight change: ☐ Stable ☐ Gain ☐ Loss
Amount _____
Bowels Movements (describe) _____
☐ Faecal Incontinence ☐ Ileostomy ☐ Colostomy

Comments: _____

_____

CARDIOVASCULAR

☐ Chest Pain (describe) _____

_____

☐ Palpitations (describe) _____

_____
☐ No problem

ENDOCRINE

☐ Enlarged Thyroid ☐ Fatigue
☐ Diabetes: ☐ Type 1 ☐ Type 2
☐ Other _____
☐ No problem

PAIN

Origin_____ Onset _____

Location _____ Type _____

Intensity (0 nil – 10 worst)_____

Other _____
☐ No problem

SLEEPING PATTERNS

☐ Sleeps through the night _____
☐ Rested after sleep _____
Comment _____

Form Completed by:

_____
Signature/Designation

Name: _____ Date_____

NSW Ongoing Needs Identification FUNCTIONAL PROFILE

Record Unique Record Number

_ _ _ _ _ _ _ _ _ _ _ _

or affix label here

Activities of Daily Living (functional screen)

Questions to ask the consumer (or the person who represents the consumer)[1].

I would like to ask you about some of the activities of daily living, things that we all need to do as part of our daily lives. I would like to know if you can do these activities without any help at all, or if you need some help to do them, or if you can't do them at all. The questions refer to how you are managing at the moment.

Item	Question	Score	Record score
1	**Can you do housework...**		
	Without help (can clean floors etc)?	2	
	With some help (can do light housework but need help with heavy housework)?	1	
	Or are you completely unable to do housework?	0	
2	**Can you get to places out of walking distance...**		
	Without help (can drive your own car, or travel alone on buses or taxis)?	2	
	With some help (need someone to help you or go with you when travelling)?	1	
	Or are you completely unable to travel unless emergency arrangements are made for a specialised vehicle like an ambulance?	0	
3	**Can you go out for shopping for groceries or clothes (assuming you have transportation)...**		
	Without help (taking care of all shopping needs yourself)?	2	
	With some help (need someone to go with you on all shopping trips)?	1	
	Or are you completely unable to do any shopping?	0	
4	**Can you take your own medicine...**		
	Without help (in the right doses at the right time)?	2	
	With some help (able to take medication if someone prepares it for you and/or reminds you to take it)?	1	
	Or are you completely unable to take your own medicines?	0	
5	**Can you handle your own money...**		
	Without help (write cheques, pay bills etc)?	2	
	With some help (manage day-to-day buying but need help with managing your chequebook and paying your bills)?	1	
	Or are you completely unable to handle money?	0	
Do not ask the following 2 questions if the client scored 2 on all of the above 5 items (ie, can do all 5 activities without help). Instead, for clients who scored 2 on all of the above items, record a 9 on each of the following 2 items to indicate that you did not ask the question.			
6	**Can you walk...**		
	Without help (except for a cane or similar)?	2	
	With some help from a person or with the use of a walker, or crutches etc	1	
	Or are you completely unable to walk?	0	
7	**Can you take a bath or shower...**		
	Without help?	2	
	With some help (eg, need help getting into or out of the bath)?	1	
	Or are you completely unable to bathe yourself?	0	

NOTES:

- If unanswered, score X.
- Rate what the person is currently capable of doing rather than what they actually do. In assessing capability, take into account not only physical function but also cognition (such as problems caused by dementia or an intellectual disability) and behaviour (such as unpredictable challenging behaviour). Consumers able to complete a task with verbal prompting should not be rated as independent (and therefore should be rated as a 1). In rating an item that is irrelevant (for example, the person has no shops in the vicinity or does not use any medications), rate based on what the person would be capable of doing if the item was actually relevant to their situation.
- Item 6 (walking). Clients who are in a wheelchair should be rated as (1) if they are independent including corners etc or (0) if they are not wheelchair independent.

1 Reproduced from the OARS/MFAQ. Copyright the Center for the Study of Aging and Human Development, Duke University Medical Center, Durham, North Carolina. Used with permission. Questions 1, 6 and 7 have been modified.

Office Use Only Summarise issues & arising action on page 1 & 2 of the ONI

Name_____ Designation/Agency_____

Sign_____ Date_____ Contact number_____

If information needs updating, indicate below and record updated information on a new FP

This information has been updated ☐ Date: _____

Name: _____ Sign: _____

Record Unique Record Number

or affix label here

Questions for you to complete

Complete the following based on all information available to you – your judgement based on interviewing or observing the client, information contained in a referral letter, consumer notes or information provided by a proxy respondent, such as a friend, relative, carer or referring agency.

Note that the consumer should not be directly asked to answer these questions.

Item	Question	Record score
8	Does the person have any memory problems or get confused?	
	No – score 2	
	Yes – score 0	
9	Does the person have behavioural problems for example, aggression, wandering or agitation?	
	No – score 2	
	Yes – score 0	

Recommended functional assessments based on this functional screen

Domestic
Look solely at items 1 to 5. Count the number of these items that scored 2 (ie, count the number of activities that the person can do without help). Refer for a domestic functional assessment if the person can do less than 3 activities without assistance – ie, the count is 2 or less (a count of 0, 1 or 2).

Self-care
Refer for a self-care functional assessment if the consumer SCORED LESS THAN 2 on either Item 6 (mobility) or Item 7 (bathing).

Cognition
Refer for a cognitive assessment if:

- the consumer scored LESS THAN 2 on either Item 4 (medicine) or Item 5 (financial management) AND you have determined that the consumer has no physical disabilities or problems with English literacy that may account for the consumer not being independent on these items OR
- the consumer scored 0 on Item 8.

Behaviour
Refer for a behavioural assessment if:

1. the consumer scored LESS THAN 2 on either Item 4 (medicine) or Item 5 (financial management) AND you have determined that the consumer has no physical disabilities or problems with English literacy that may account for the consumer not being independent on these items OR
2. the consumer scored 0 on Item 9.

Comments

Aids and equipment currently used

Self-Care Aids	☐	Medical Care Aids	☐
Support and Mobility Aids	☐	Car Modifications	☐
Communication Aids	☐	Other Goods/Equipment	☐
Aids for Reading	☐	List:	

Office Use Only Summarise issues & arising action on page 1 & 2 of the ONI

Name_____ Designation/Agency_____

Sign_____ Date_____ Contact number_____

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This information has been updated ☐ Date: _____

Name: _____ Sign: _____

ILLAWARRA AREA HEALTH SERVICE

Patient Details

ASSESSMENT TYPE (Please Tick)

- ☐ Admission
- ☐ Post - Operative
- ☐ Following Clinical Change
- ☐ Re-assessment

ASSESSOR: .....

DATE: .....

SKIN INTEGRITY: (pressure points) on Admission to Ward/Unit:
Is there evidence of pressure damage / skin breakdown? (bruising, blistering & / or wounds).

YES ☐ NO ☐
(If YES, complete wound assessment chart MR 133.2)

RISK STATUS

MOBILITY:
Does the patient reposition self & move all extremities independently? YES ☐ NO ☐
(If NO, patient is identified as "AT RISK")

DEGREE OF RISK (High, or Very High):- Is relative to the type of accompanying patient variables which influence tissue oxygen availability.

DEGREE OF RISK (IMMOBILE PATIENT)

- ☐ UNDER 60 YEARS
- ☐ EMACIATED

→ **HIGH RISK** ☐

- ☐ VASOCONSTRICTING AGENTS (adrenaline infusion, cigarette smoker etc)
- ☐ ANAEMIA
- ☐ DECREASED BLOOD SUPPLY (diabetes, vascular or cardiac disease, hypotension etc.)
- ☐ INCREASED SKIN TEMPERATURE
- ☐ DYSPNOEA (pulmonary disease)
- ☐ UNABLE TO TOLERATE A TURNING REGIME (pain, burns etc)
- ☐ OVER 60 years
- ☐ EXISTING GRADE 3 or 4 PRESSURE ULCER

→ **VERY HIGH RISK** ☐

MANAGEMENT GUIDE

- Basic Hospital Bed - Hrly to 2nd hourly turns
  or
- Static equipment + 4th hourly turns, e.g. fibre filled, foam etc.
  or
- Active equipment + 8 hourly turns, e.g. alternating air mattresses.

- Basic Hospital Bed - half to hourly turns
  or
- Static equipment + 2nd hourly turns. e.g. fibre filled, foam etc
  or
- Active equipment + 8th hourly turns. e.g. alternating air mattresses.

NB.
1. **Sitting positions increase pressure ulcer risk.**
2. **Unstable fractures are contraindicated for active equipment.**
3. **Equipment must be appropriate for a patient's weight.**
4. **Review plan DAILY.**

NURSING INTERVENTION :

EQUIPMENT: _____ **&/OR TURNING REGIME:** _____

RISK ASSESSMENT - PRESSURE ULCER MANAGEMENT

PATIENT OUTCOME:

	DATE OF ASSESSMENT	DEGREE OF RISK IDENTIFIED	DATE & MANAGEMENT IMPLEMENTED	OUTCOME SCORE
Example :	2.11.95	HIGH	2.11.95 - MATTRESS OVERLAY & 2/24 TURNS	GRADE 1

ON ADMISSION

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

8 _____

9 _____

10 _____

11 _____

12 _____

OUTCOME SCORE: ☐

OUTCOME SCORE AND COMMENT:
(To be completed by nurse discharging patient)

Grade 0 **Unbroken,** blanchable erythema
Grade 1 **Unbroken,** non-blanchable erythema
Grade 2 **Broken,** superficial wound
Grade 3 **Shallow** cavity (fat, muscle)
Grade 4 **Deep cavity** (muscle, bone)

Any further comments:

_____

_____

_____

_____

_____

Discharge Nurse: _____ Date: _____

Binding Margin - No Writing

ILLAWARRA AREA HEALTH SERVICE
COMMUNITY HEALTH - CARE PLAN

SURNAME	OTHER
SEX	D.O.B.
M.R.N	CENTRE

CARE PLAN

Date	Issue No	Problem / Issue	Client desired outcome	Contract / action to accomplish goals	Date review	Actual outcome	Date	Signature

Illawarra Health
Better Services, Better Health

Community Health

MRN			
Surname			
Given Names			
DOB		Sex	

Community Health Client / Carer Agreement (include other services involved / referred to)

I, _____ agree to the above care plan and relevant information being made available to the Services nominated in the agreement.			
Signature		**Date**	

Please comment if the client / carer is unwilling or unable to sign (eg. oral agreement)

☐ **Client Rights and Responsibilities Pamphlet given & explained.**

Community Health Professional Signature& Designation	
Name (please print)	
Date	

Client / Carer Agreement

Illawarra Health
Better Services, Better Health

Date and Time

Patient Details

Progress Notes

Illawarra Health

Better Services, Better Health

Community Health

MRN	
Surname	
Given Names	
DOB / Sex	

Nb* This is not a medication order. It is to be used in conjunction with written instructions from medical officer.

Date	Time Given	Drug	Dose	Route/Site	Temp/BP	Initials

Medication Administration Record

Illawarra Health
Better Services, Better Health

Community Health

MRN			
Surname			
Given Names			
DOB		Sex	

Date _____

Dear _____,

Thank you for referring _____ of

_____(suburb) to the Generalist Community Nursing Service.

A home visit was attended on _____(date).

After completing the assessment, the care plan is as follows:

_____

_____

_____

_____

_____

If you have any queries, please do not hesitate to contact me at _____

Community Health Centre, phone: _____.

Yours sincerely,

_____

_____ (please print)
Generalist Community Nurse

Reply completed: ☐ on admission to service
☐ review of ongoing care
☐ discharge from service

For Department of Veterans Affairs Clients, please include:

DVA Number _____

Reply to Referral

Illawarra Health
Better Services, Better Health

Community Health

MRN	
Surname	
Family Names	
DOB / Sex	

All clinicians are required to record their signature and initials to enable future identification of entries into the client record. Any clinicians making entries into this record must complete the table below.

Initials	Signature	Designation	Printed Name

Signature Record

PALLIATIVE CARE UNIT

PENDING ADMISSION FORM

PATIENT DETAILS **Date:**

Name:

Address:

Phone:

D.O.B or MRN

Referred by: Received By:

Current location of patient:

All relevant Details:

(CONDITION/MEDICATION/HISTORY)

ADMITTING PROCESS

Urgent On hold till Non urgent First available bed

Process reviewed/updated

PALLIATIVE CARE UNIT

PROBLEM ORIENTED FLOW SHEET

		Initial Assessment Date	Review Date	Review Date	Review Date	Review Date	Review Date	I
PROBLEM TYPE								
1	**Pain Score (0-10)**							
2	**Nausea & Vomiting**							
3	**Constipation**							
4	**Breathlessness**							
5	**Cough**							
6	**Genitourinary**							
7	**Neuropsychological**							

ON ADMISSION - Please indicate if Problem is ACTIVE = A or INACTIVE = I
REVIEW AND COMPLETE 2ND DAILY

FOR NEW PROBLEMS:
Date

Details :

Treatment:

SUMMARISE REASON FOR ANY ACTIVE PROBLEMS ON SEPARATION
[1]

[1] This form is used as a quality tool

ILLAWARRA AREA HEALTH SERVICE

GENERAL EXAMINATION ON ADMISSION

Observations: T: ..... P: ..... RR: ..... BP: .....

Weight: ..... Urinalysis: .....

Pallor:

Jaundice:

Cyanosis:

Musculoskeletal System:

Lymph Nodes:

Oedema / Lymphoedema:

Neurological System:

Cardiovascular System:

Skin:

Respiratory System:

Abdomen:

SUMMARY:

Signature of Admitting Doctor: .....

Date: .....

ILLAWARRA AREA HEALTH SERVICE

3. CONSTIPATION: YES / NO

Bowel Habits:

Current bowel routine: [ ] more than 1 / day [ ] less than 5 / week
[ ] 5 - 7 / week [ ] other .....

Current Aperient usage: .....

Previous Aperient usage: [ ] No [ ] Regularly [ ] As necessary

Last bowel action: .....

Aetiology:

4. BREATHLESSNESS: YES / NO

Aetiology:

5. COUGH: YES / NO

Aetiology:

6. GENITOURINARY:

7. NEUROPSYCHOLOGICAL:

(a) Problem: [ ] Anxiety [ ] Depression [ ] Agitation
[ ] Confusion [ ] Pre-coma [ ] Coma

(b) Awareness of Diagnosis and Insight: .....

.....

8. GENERAL WEAKNESS: YES / NO

Aetiology:

9. OTHER:

[ ] Anorexia
[ ] Weight Loss
[ ] Sore Mouth
[ ] Dry Mouth
[ ] Dysphagia
[ ] Headaches
[ ] Sputum
[ ] Diarrhoea
[ ] Ankle Swelling
[ ] Discharge
[ ] Pressure Areas
[ ] Weakness
[ ] Haematemesis
[ ] Haemoptysis
[ ] Faecal Incontinence
[ ] Lymphoedema
[ ] Sleep Disturbance
[ ] Fits / Faints / Funny Turns

[ ] Other, Specify: .....

Enter Summary of above information on the Problem Oriented Flow Sheet.

ILLAWARRA AREA HEALTH SERVICE

PROBLEMS ON INITIAL ASSESSMENT

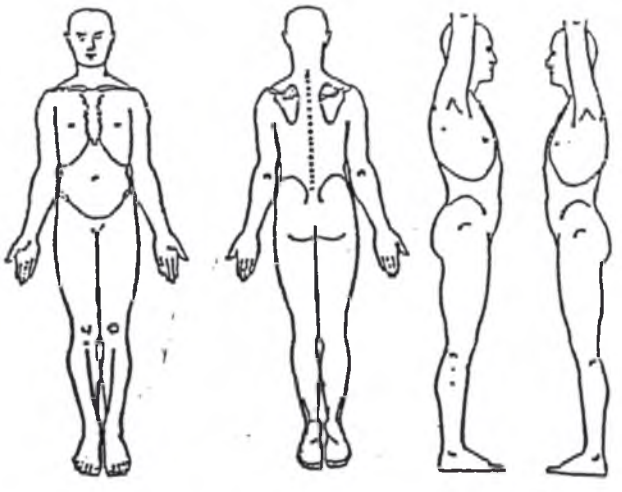
PAIN ASSESSMENT:

LOCATION:

Mark position of pain site(s) on diagram

■ = pain site

↙ = direction pain radiates



Site of pain(s): .....

Pain Intensity Rating —

At present: 0 — — — — — — — — — 10
no pain worst possible pain

Lowest Level of Pain: ..... Highest Level of Pain: .....

Acceptable Level of Pain: .....

Describe the pain in your own words: .....

Does it radiate/move?: .....

What relieves it?: .....

Effects of Pain on: (Note decreased function/quality of life)

[ ] Sleep: ..... [ ] Emotions: .....

[ ] Appetite: ..... [ ] Concentration: .....

[ ] Physical Activity: ..... [ ] Other: .....

[ ] Relationship with others (e.g.: irritability): .....

Do you experience any other pain(s)?: .....

Other comments: .....

1. **PAIN:** Aetiology Severity

1.

2.

3.

4.

2. **NAUSEA AND VOMITING:** YES / NO

Frequency: ..... When does this occur? .....

Aetiology

ILLAWARRA AREA HEALTH SERVICE

CLINICAL ASSESSMENT

(To be completed by Medical Officer)

PREVIOUS CONSULTANTS:

REFERRING DR:

ADMISSION / TRANSFER from:

Hospital / Home / O.P.D. / Other

DIAGNOSIS / ES:

WHEN DIAGNOSED:

DATE OF ASSESSMENT / ADMISSION / TRANSFER:

REASON FOR REFERRAL / ADMISSION / TRANSFER:

HISTORY OF CURRENT ILLNESS:

RELEVANT PAST HISTORY:

MEDICAL ON ASSESSMENT / ADMISSION / TRANSFER:

ALLERGIES AND RESPONSE:

Drugs:
Food:
Other:

USED AND FREQUENCY OF:

Cigarettes:
Alcohol:

ILLAWARRA AREA
HEALTH SERVICE

ALLERGY LABEL

Patient Details

Interviewee:..... Preferred Name: .....

Date: ..... Time: ..... Transferred from: .....

Language Spoken:..... Interpreter Needed .....

HOME ASSESSMENT:

Lives With:.....

Main Carer: .....

Full Name: .....

Address: .....

Family Members: .....

Reason Patient Was Given for Admission: .....

.....

Patient's Understanding/Expectation of Admission: .....

Length of Admission (days, weeks, etc.): .....

Spiritual Needs: ..... Religion: .....

Would Patient Like to be Contacted by their Clergy? Yes ☐ No ☐

Important Practices / Customs: .....

.....

PERSONS FOR NOTIFICATION: *Please mark with Asterisk (*) contact number for night time*

1st Contact Name:..... Relationship to Patient: .....

Address:..... Post Code:.....

☎(H) ..... (W)..... Mobile .....

2nd Contact Name:..... Relationship to Patient: .....

Address:..... Post Code:.....

☎(H) ..... (W)..... Mobile .....

Other Contact Name:..... Relationship to Patient: .....

Address:..... Post Code:.....

☎(H) ..... (W)..... Mobile .....

Would this person be happy to be contacted anytime? ....

PALLIATIVE CARE UNIT

Bowel Chart

DESCRIPTION OF BOWEL ACTIONS CODE		RECTAL EXAMINATION	INTERVENTIONS
SIZE:	CONSISTENCY:	EC = empty collapsed	S = stimulants
A very small amount	1 soft formed	ED = empty dilated	OOE = olive oil enema
B small amount	2 hard formed	EDS = full dilated soft	MICRO= microlax enema
C moderate amount	3 pellets	EDH = full dilated hard	DS = dumlax suppositories
D large amount	4 fluid/ overflow		CE = colaxyl enema
	5 malaena		OTH = other specify
	6 loose/ diarrhoea		PCU = cocktail

For Example: A soft formed, normal size bowel action = C1

NOTE:.Use codes from above on chart. Save stool for inspection if abnormal - record and describe abnormalities. Record urine output.

Date	Time	No. Of Days BNO	Rectal Examination	Intervention	Results	Comments	Voided
NIGHT							
DAY							
EVENING							
Date	**Time**	**No. Of Days BNO**	**Rectal Examination**	**Intervention**	**Results**	**Comments**	**Voided**
NIGHT							
DAY							
EVENING							
Date	**Time**	**No. Of Days BNO**	**Rectal Examination**	**Intervention**	**Results**	**Comments**	**Voided**
NIGHT							
DAY							
EVENING							
Date	**Time**	**No. Of Days BNO**	**Rectal Examination**	**Intervention**	**Results**	**Comments**	**Voided**
NIGHT							
DAY							
EVENING							
Date	**Time**	**No. Of Days BNO**	**Rectal Examination**	**Intervention**	**Results**	**Comments**	**Voided**
NIGHT							
DAY							
EVENING							

NIGHT							
DAY							
EVENING							

Date	Time	No. Of Days BNO	Rectal Examination	Intervention	Results	Comments	Voided
NIGHT							
DAY							
EVENING							

Date	Time	No. Of Days BNO	Rectal Examination	Intervention	Results	Comments	Voided
NIGHT							
DAY							
EVENING							

Date	Time	No. Of Days BNO	Rectal Examination	Intervention	Results	Comments	Voided
NIGHT							
DAY							
EVENING							

Date	Time	No. Of Days BNO	Rectal Examination	Intervention	Results	Comments	Voided
NIGHT							
DAY							
EVENING							

Date	Time	No. Of Days BNO	Rectal Examination	Intervention	Results	Comments	Voided
NIGHT							
DAY							
EVENING							

Date	Time	No. Of Days BNO	Rectal Examination	Intervention	Results	Comments	Voided
NIGHT							
DAY							
EVENING							

Date	Time	No. Of Days BNO	Rectal Examination	Intervention	Results	Comments	Voided
NIGHT							
DAY							
EVENING							

Patient/client number _ _ _ _ _ _ _ _ _ _

Patient/client name _____

Date of birth _ _ / _ _ / _ _ _ _
dd/mm/yyyy

Patient Details (Do not enter on form if bradma is above)

Address

Number & Street, Suburb/town, State/Territory, Postcode

Sex ☐

1 male, 2 female, 3 Indeterminate, 9 not stated/inadequately defined

Indigenous Status ☐

1 Aboriginal, 2 Torres Strait Islander, 3 Both A& TSI, 4 neither, 5 not stated

Country of Birth (nb 1101=Australia) _____

If Veteran, DVA file number _ _ _ _ _ _ _ _

Otherwise leave blank

Preferred Language (nb 2=English) _____

Interpreter Required ☐

1 yes, 2 no

Accommodation Type ☐

1 - House/flat 2-Independent unit in retirement village or similar 3-Hostel or hostel-type accommodation 4-Other accommodation 5- No usual residence

Episode Details

Episode begin date _ _ / _ _ / _ _
dd/mm/yy

Case Type ☐

1-Palliative Care 2-Rehabilitation 3-Psychogeriatric 4-GEM 5-Maintenance 6-Acute and post-acute 7-primary care

Episode type ☐

1-Overnight (admitted & discharged on different dates)
2-Same day admitted patient 3-Outpatient 4-Community

Assessment only ☐

1-Yes 2-No

Assessment type For Assessment Only ☐

1- Medical, with diagnostic pathology and/or imaging
2-Medical, without diagnostic pathology and imaging
3-Non-medical
4-Both medical and non-medical with diagnostic pathology and/or imaging
5-Both medical and non-medical without diagnostic pathology and imaging

Reason for episode start ☐

Overnight admitted patients only:
1-Admitted from a nursing home 2-Admitted from other accommodation 3 Transferred from another hospital 4-Transferred from acute care in anoth this hospital 5-Change from acute care to a SNAP Case Type whilst rema the same ward 6-Change of Case Type within SNAP 7-Statistical admiss leave 8- 90 day review

All other patients:
A-First contact following referral B-Transferred from being an overnight pa Change from primary or acute to a SNAP Case Type D-Change of Case within SNAP E- Change of episode type F - 90 day review

Model of Care ☐

1- Direct Care
2.1-GP Shared care
2.2-Shared care with another service provider
3.1-GP Consultation/liaison
3.2-Consultation/liaison with another service provider
3.3-Consultation/liaison within the SNAP provider unit

Episode end date _ _ / _ _ / _ _
dd/mm/yy

Reason for episode end ☐

Overnight admitted patients only: *1-Discharged to a nursing home 2-Disc to other accommodation 3-Bereavement phase end or death. (Episode end occur when Phase 5 is completed and not only at the death of the patient) 4-Discharged/transferred to another hospital 5-Change from a SNAP Case Ty acute care and transferred to a different ward 6-Change from a SNAP Case to acute care whilst remaining on the same ward 7-Change of Case Type wit SNAP 8-Discharge own risk 9-Statistical discharge from leave 10- 90 day re*

All other patients: *A-Discharge/case closure B-Bereavement phase end or (Episode end can occur when Phase 5 is completed and not only at the death the patient) C-Admitted to hospital as an overnight stay patient D-Change fro SNAP Case Type to either acute or primary care E-Change of Case Type wit SNAP F- Change of episode type G- 90 day review*

Compensable status ☐

1-Compensable 2-Non-compensable

Leave Days for overnight admitted patients only -
record the date of each occasion the person has overnight leave [c]

dd/mm	dd/mm	dd/mm	dd/mm	dd/mm	dd/mm	dd/mm	dd/mm	dd/mm	dd/m

Number of interrupted days _____

Consultant _____

Clinical Details

Episode diagnosis _____

Palliative Care Phase, RUG-ADL and Reason for Phase End are compulsory for all episode types.

Palliative Care (PC) Problem Severity Score at Episode Start is required for same day, outpatient and community episodes, optional for overnight admitted episodes.

For each phase record:

PC Phase
1 – Stable 2 - Unstable 3 - Deteriorating
4 - Terminal 5 - Bereaved

End Reason
1- Phase change 2-Discharge/case closure
3-Died 4-Bereavement phase end

RUG-ADL Score
For bed mobility, toileting & transfers:
1 - Independent or supervision only
3 - Limited physical assistance
4 - Other than 2 person physical assist
5 - 2 person physical assist
For eating:
1 - Independent or supervision only
2 - Limited assistance
3 - Extensive assistance/total dependence/tube fed

Phase		Date	PC Phase	End reason	RUG ADL Score				PC Problem severity score			
					Bed Mobility	Toileting	Transfer	Eating	PC Pain Score	PC Other Symptom Score	PC Psych/ Spiritual Score	PC Family / e Score
1st	Begin											
	End											
2nd	Begin											
	End											
3rd	Begin											
	End											
4th	Begin											
	End											
5th	Begin											
	End											

Palliative Care (PC) Problem Severity Score

PC Pain	The degree of overall pain symptoms
PC Other Symptom	Record the degree of overall other symptoms. The following list may be used as a guide: nausea/vomiting, anorexia, itch/irritation, constipation/diarrhoea, wound/ulcer, dysphagia, incontinence, weakness/fatigue, oedema, dyspnoea, confusion/delirium.
PC Psychological/Spiritual	Record the score for overall degree of psychological/spiritual problems of the patient. The following list may be used a guide: anxiety/fear, anger, unrealistic goals, agitation, request to die, depression/sadness, confusion.
PC Family/Carer	Record score for the overall degree of family/carer problems. The following list may be used as a guide: denial, care giver fatigue, unrealistic goals, anger, difficult communication - non-English speaking-sensory impairment financial, family/carer conflict, legal, family/carer anxiety, accommodation, cultural

FOR ALL ITEMS SCORE SEVERITY: 0-absent 1-mild 2-moderate 3-severe

Illawarra Health
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PATIENT DETAILS

Alpha Excel Correct Functioning Check List

Check mattress is working correctly at least once each shift & action to take if not functioning correctly

Document/indicate/ Yes (✔) or NO (**x**) on checking and write your name at the end of the line

Caution: always refer to safe working procedure when moving pump/mattress.

Date	Shift	Time	Power tuned on	Pump working	Leads in place including CPR plug	All cells of mattress inflating/ deflating	Appropriate pressure to weight of patient	Name of person attending check
	Day							
	PM							
	Night							
	Day							
	PM							
	Night							
	Day							
	PM							
	Night							
	Day							
	PM							
	Night							
	Day							
	PM							
	Night							
	Day							
	PM							
	Night							
	Day							
	PM							
	Night							
	Day							
	PM							
	Night							

Report to "in-charge" if alpha excel not working and document action taken to correct fault

Describe fault found	Reported to (name)	Action Taken

MR

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PATIENT DETAILS

1. ASSESSMENT TYPE (Please Tick)

- ☐ Admission
- ☐ Post-Operative
- ☐ Following Clinical Change
- ☐ Re-assessment

ASSESSOR
(Print, sign, & Designation): _____

DATE: _____

2. SKIN INTEGRITY (Pressure Points) on assessment:

Is there evidence of pressure damage/skin breakdown? (Bruising, Blistering &/or Wounds).

☐ NO ☐ **YES** (If YES, also complete IAHS Wound Assessment Chart MR 133.2)

3. MOBILITY

Does the patient regularly reposition themselves & their lower limbs without assistance every 20-30 minutes
(include patients with restricted movement post surgery)

☐ YES - Assessment complete, patient NOT "at risk" – no further information required for this assessment

☐ **NO - Patient identified as immobile & "AT RISK" - complete below**

☐ UNDER 60 years old
Variables

Yes

☐ OVER 60 years old

No

Variables
- ☐ VASOCONSTRICTING AGENTS (adrenalin infusion, smoking etc)
- ☐ ANAEMIA
- ☐ DECREASED BLOOD SUPPLY (diabetes, vascular or cardiac disease, hypotension etc)
- ☐ INCREASED TEMPERATURE
- ☐ DYSPNOEA (lung disease)
- ☐ EXISTING GRADE 3 or 4 PRESSURE ULCER

☐ ***HIGH RISK***

☐ ***VERY HIGH RISK***

NURSING INTERVENTION – choose equipment & turning regime appropriate to the degree of risk

☐ **Alternating Air Pressure Device**
with 4 – 8 hourly turns or
☐ **Constant Low Pressure Device**
with 2 – 4 hourly turns or
☐ Standard Hospital Mattress
with 1 - 2 hourly turns

☐ **Alternating Air Pressure Device**
with 2 – 8 hourly turns or
☐ Constant Low Pressure Device
with 1 – 2 hourly turns or
☐ Standard Hospital Mattress
with ½ - 1 hourly turns

SPECIAL NOTE:
- Sitting positions increase pressure ulcer risk
- Unstable fractures are contra-indicated for "dynamic support surface devices" ie alternating air pressure
- Equipment must be appropriate for a patient's weight
- Patients may require repositioning more frequently for other clinical reasons eg. lung perfusion & comfort
- For patients who cannot tolerate a turning regime (burns, pain etc) - choose "dynamic support surface" devices
- Keep patient's skin clean & dry at all times using cleansing solutions with a pH of 5.5 and barrier preparations
- Reduce shear & friction forces by good transfer & positioning techniques
- Consider referral for a nutritional assessment if concerned about dietary intake

EQUIPMENT USED: _____ TURNING REGIME: _____ hrly

RISK ASSESSMENT - PRESSURE ULCER MANAGEMENT

...E CARE WARD
PORT KEMBLA HOSPITAL
NURSING CARE PLAN

MRN:_____
SURNAME:_____
GIVEN NAME:_____
SEX:_____ DOB:___/___/___
LMO/VMO:_____
PLEASE AFFIX BRADMA LABEL

PATIENT PREFERENCE

Preferred name: _____ Time for bath/shower:_____
Preferred attire: _____ Hobby or past time: _____
Special instructions: eg Visitors:

ORIENTATION TO WARD
(Please tick once patient and family have been orientated)

□ Ward Information Leaflet □ Visiting Hours □ Ward phone numbers
□ Amenities □ Facilities □ Overnight stay (family)
□ Gate leave □ Non-Smoking policy □ After hours Hospital access

VALUABLES LIST ON ARRIVAL TO WARD
(Only for items not stored in Hospital Safe)
***The Nursing Staff is not responsible fro the safe keeping of valuables brought in by patients, however a request can be made by the patient or NOK to have valuables stored in Hospital Safe. The items will then be entered in Valuables Register and a receipt will be issued.**

□
□
□

STAFF USE ONLY

ALLERGY ALERT	HIGH RISK FOR FALLS ALERT

PLEASE TICK APPROPRIATE BOX

ADDITIONAL INFORMATION

...KEMBLA HOSPITAL *NURSING CARE PLAN*	SURNAME:_____ GIVEN NAME:_____ SEX:_____ DOB:__/__/__ LMO/VMO:_____ ***PLEASE AFFIX BRADMA LABEL***	**PHYSICAL DOMAIN**

NURSING CARE ACTIVITIES	GOALS OF CARE	INITIAL PLAN OF CARE **RUG/ ADL SCORE**	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN
		DATE:	DATE:	DATE:	DATE:	DATE:
PAIN CONTROL: ☐ Does not require ☐ Q4Hrs PO/SC analgesia ☐ SR morphine BD ☐ Syringe Driver ☐ Other:	To ensure patient is free of pain and as comfortable as possible.	PC Phase ☐ PAIN SCORE ☐ Nil (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3) ☐ Incidental only	PC Phase ☐ PAIN SCORE ☐ Nil (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3) ☐ Incidental only	PC Phase ☐ PAIN SCORE ☐ Nil (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3) ☐ Incidental only	PC Phase ☐ PAIN SCORE ☐ Nil (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3) ☐ Incidental only	PC Phase ☐ PAIN SCORE ☐ Nil (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3) ☐ Incidental only
OTHER SYMPTOMS: (Please list same and indicate severity and formulate goal of care)		☐ Nil (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3)	☐ Nil (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3)	☐ Nil (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3)	☐ Nil (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3)	☐ Nil (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3)
Signature of Staff member completing Nursing Care Plan						

NURSING CARE ACTIVITIES	GOALS OF CARE	INITIAL PLAN OF CARE RUG/ ADL SCORE	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN
PHYSICAL DOMAIN	DATE:	DATE:	DATE:	DATE:	DATE:	DATE:
ELIMINATION: Bladder: (Please Tick) ☐ Continent ☐ Urinal ☐ Incont. Pads ☐ Uridome: Nocte Day and night ☐ IDC inserted: Date: (Please refer to Bowel Chart, for bowel regime)	To maintain regular pattern and comfort.	PC Phase ☐ ☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	PC Phase ☐ ☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	PC Phase ☐ ☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	PC Phase ☐ ☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	PC Phase ☐ ☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)
GENERAL HYGIENE: ☐ Daily bath/shower ☐ 2nd daily shower ☐ 2nd daily sponge	To maintain cleanliness, preserve dignity and independence and ensure comfort.	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)
NUTRITION: DIET: _____ Special needs: _____ _____	To provide diet and fluids according to patient's needs and wishes.	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2-people physical assist (5)	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)
Signatures of staff members completing Nursing Care Plan						

NURSING CARE ACTIVITIES	GOALS OF CARE	INITIAL PLAN OF CARE **RUG/ ADL SCORE**	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN
PHYSICAL DOMAIN	DATE:	DATE:	DATE:	DATE:	DATE:	
WOUND AND PRESSURE AREA CARE: (Please tick) ☐ Spenco Mattress ☐ Alpha Xcell ☐ Water chair *** Dressings refer to wound chart.**	**To maintain skin integrity at the optimum possible level.**	PC Phase ☐ REPOSITIONING: ☐ 4th hourly ☐ As required	PC Phase ☐ ☐ 4th hourly ☐ As required	PC Phase ☐ ☐ 4th hourly ☐ As required	PC Phase ☐ ☐ 4th hourly	PC Phase ☐ ☐ 4th hourly ☐ As required
SUBCUTANEOUS INFUSION SITE/S: (If more than one infusion site, please enumerate)	**To provide access for S/C or I/V drug administration or hydration.** **To maintain site free from infection**	**DATE INSERTED:** _____ **SITE:** _____				
MOBILITY/ MANUAL HANDLING: (Please tick) ☐ Walking Aide ☐ Commode / Wheelchair ☐ Lifter	**To maintain safety and to mobilise patient according to His/Her capabilities.** **To ensure safe and effective manual handling techniques are employed.**	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2peoplephysical assist (5)	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)	☐ Independent/ Supervision only (1) ☐ Limited physical assistance (3) ☐ Other than 2 people assistance (4) ☐ 2 people physical assist (5)
Signature of Staff member completing Nursing Care Plan						

PALLIATIVE CARE WARD
-PORT KEMBLA HOSPITAL
NURSING CARE PLAN

MRN:_____
SURNAME:_____
GIVEN NAME:_____
SEX:_____ DOB:___/___/___
LMO/VMO:_____
PLEASE AFFIX BRADMA LABEL

PSYCHOLOGICAL AND SPIRITUAL DOMAIN

NURSING CARE ACTIVITIES	GOALS OF CARE	INITIAL PLAN OF CARE **RUG/ ADL SCORE**	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN
		DATE:	DATE:	DATE:	DATE:	DATE:
MENTAL HEALTH (Please tick) Level of consciousness: ☐ Fully conscious ☐ Drowsy ☐ Unconscious	To ascertain level of consciousness and cognitive ability.	PC Phase ☐ ☐ No Impairment (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3)	PC Phase ☐ ☐ No Impairment (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3)	PC Phase ☐ ☐ No Impairment (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3)	PC Phase ☐ ☐ No Impairment (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3)	PC Phase ☐ ☐ No Impairment (0) ☐ Mild (1) ☐ Moderate (2) ☐ Severe (3)
EMOTIONAL HEALTH Emotional Status: (Please circle) Assessed: Yes No	To identify sources of emotional pain and suffering, and to alleviate distress.	☐ Nil needs identified (0) ☐ Minimal intervention required. (1) ☐ Some intervention (2) ☐ Frequent intervention required (3	☐ Nil needs identified (0) ☐ Minimal intervention required. (1) ☐ Some intervention (2) ☐ Frequent intervention required (3	☐ Nil needs identified (0) ☐ Minimal intervention required. (1) ☐ Some intervention (2) ☐ Frequent intervention required (3	☐ Nil needs identified (0) ☐ Minimal intervention required. (1) ☐ Some intervention (2) ☐ Frequent intervention required (3	☐ Nil needs identified (0) ☐ Minimal intervention required. (1) ☐ Some intervention (2) ☐ Frequent intervention required (3
COMMUNICATION Language: _____ Interpreter needed Yes No Hearing:_____ Sight:_____	To establish and preserve open communication. To minimise the effect of sensory loss					
Signatures of staff members completing Nursing Care Plan						

NURSING CARE ACTIVITIES	GOALS OF CARE	INITIAL PLAN OF CARE **RUG/ ADL SCORE**	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN	EVALUATION AND REVISED PLAN
PSYCHOLOGICAL AND SPIRITUAL DOMAIN		DATE:	DATE:	DATE:	DATE:	DATE:
SPIRITUAL NEEDS: Denomination if any:_____ _____ Chaplain involvement: Yes No (Please document any special request in regards to Religious practice and spiritual exercises.)	To provide patients and families with the opportunity and facilities to exercise their individual religious or spiritual activity, within the ward environment.					
SOCIAL WORK: Social Worker in charge: . _____ Patient/Family referred: Yes No Date:	To ensure that patients have access to Social workers and the support, which these professionals can supply.					
VOLUNTEERS: Patient referred: Yes No Date:						
Signature of staff member completing Nursing Care Plan						

Palliative Care Syringe Driver Chart

Medication Order 24 Hour Infusion

Range of doses may be ordered. Please indicate clearly

Date:_____

1._____

2._____

3._____

4._____

Print Name:_____

Signature: _____

BRADMA

Medications Loaded	Sub Cut Site	Loading/ Commencement	Observation/Check						
If medication required includes a dosage range please indicate clearly ntents of each infusion		Loaded by (signature)	Time						
		i)	Rate						
		ii)	Volume						
		Commenced: Date: Time: Due:	Initials						
If medication required includes a dosage range please indicate clearly contents of each infusion		Loaded by (signature)	Time						
		i)	Rate						
		ii)	Volume						
		Commenced: Date: Time: Due:	Initials						
medication required cludes a dosage range ase indicate clearly ntents of each infusion		Loaded by (signature)	Time						
		i)	Rate						
		ii)	Volume						
		Commenced: Date: Time: Due:	Initials						
edication required ides a dosage range se indicate clearly ents of each infusion		Loaded by (signature)	Time						
		i)	Rate						
		ii)	Volume						
		Commenced: Date: Time: Due:	Initials						

…LIATIVE CARE UNITS

Fixed Interval Variable Dose Morphine (FIVD) Chart

BRADMA

DRUG ALLERGIES

Morphine …… mg by …… *route every 4 hours. Increase or decrease dose by …… mg until patient is comfortable **without** excessive drowsiness, up to a maximum of ……….. mg. *(*state whether Oral S/C).*

MO Signature: ……………………………………………………

Date Ordered: ……………………………………………………

A breakthrough dose **EQUAL TO/ OR HALF of the LAS** **regular dose** *(please circle one)* may be given, and not more times in 24 hours. If oral medication is not tolerated, give **on** **of oral dose** in mg by S/C. If patient stable on Morphine, bec and next dose to be given together for uninterrupted sleep.

YES Γ NO Γ

Date/Time	Route	Dose	Signature	Pain Score 0–10	Comments from Patient on Pain or Side Effect/s		S

[redacted]

MEDICATION CHART

DRUG REACTION / ALLERGY	Body Weight	SURNAME:	M.R.N.:
	Height	GIVEN NAMES:	
		AGE: SEX: WARD:	

ORAL / TOPICAL MEDICATION

Pharmacy Use Only	Date	Drug & Form (Print Generic Name)	Dose	Route	Frequency	Sign & Print Name	Admin. Times A.M.	P.M.

PARENTERAL MEDICATION

WEEK ONE

Date:		Date:		Date:		Date:		Date:		Date:		Date:	
A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.

RECORD OF ADMINISTRATION

WEEK ONE ONCE ONLY MEDICATION

Date to be given	Time to be given	Drug Name and Form	Dose	Route	Signature	Time given	Given by

VARIABLE DOSE REGIMENS

DRUG & ADMINISTRATION INSTRUCTIONS

DOCTOR'S SIGNATURE

LABORATORY RESULTS

DATE:

TIME	Dose	Nurses Initial	Dose	Nurses Initial	Dose	Nurses Initial	Dose	Nurses Initial	Dose	Nurses Initial	Dose	Nurses Initial	Dose	Nurses Initial

DRUG & ADMINISTRATION INSTRUCTIONS

DOCTOR'S SIGNATURE

LABORATORY RESULTS

DATE:

TIME	Dose	Nurses Initial	Dose	Nurses Initial	Dose	Nurses Initial	Dose	Nurses Initial	Dose	Nurses Initial	Dose	Nurses Initial	Dose	Nurses Initial

ILLAWARRA AREA HEALTH SERVICE

PRESCRIBING NOTES

1. All entries must be legible

2. Use generic or hospital approved drug names

3. To discontinue an order the medical officer must draw a line through the drug name being ceased and the space for administration. Changes must be initialled.

4. Each drug must be signed separately

5. Abbreviations cause confusion and should not be used

   eg
   - $NaHCO_3$
   - od for once daily
   - U for units
   - $\frac{6}{24}$ etc

6. If a drug is not given every day eg methotrexate weekly, all days when the drug is not due must be crossed off the administration section.

DOSE OMITTED CODE			
A	Absent from ward	N	Not available
D	MO's instruction	R	Refused
F	Fasting	V	Vomiting
L	On leave	W	Withheld

PHARMACY USE ONLY